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Vol. CXIII.



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The conditions are that the Chemist who buys on these terms undertakes to display 'ASPRO' Advertising matter in his shop window for 14 days, and sell at advertised prices. As 'ASPRO' is so extensively

advertised, this action will not only bring customers into the Chemist's shop to purchase 'ASPRO' but should enable the chemist's staff to make other sales to these customers. Acceptance of Bonus is considered acceptance of conditions regarding display and selling prices. For Bonuses it is not necessary to buy both sizes at the same time, i.e., single lots 6 dozen 10's or 3 dozen 27's will qualify the Chemist. You order as follows:—We do not sell direct to the Chemist. All our business goes through Wholesalers. Orders may be sent either to your Wholesaler or direct to us. If to us, state the name of your Wholesaler, so that we may forward the order on and the Bonus will be supplied direct by us.

You order as follows:—We do not sell direct to the Chemist. All our business goes through Wholesalers. Orders may be sent either to your Wholesaler or direct to us. If to us, state the name of your Wholesaler, so that we may forward the order on and the Bonus will be supplied direct by us.

**Ordinary prices for unstamped  
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2d. size (containing 5 tablets)	2/3 doz
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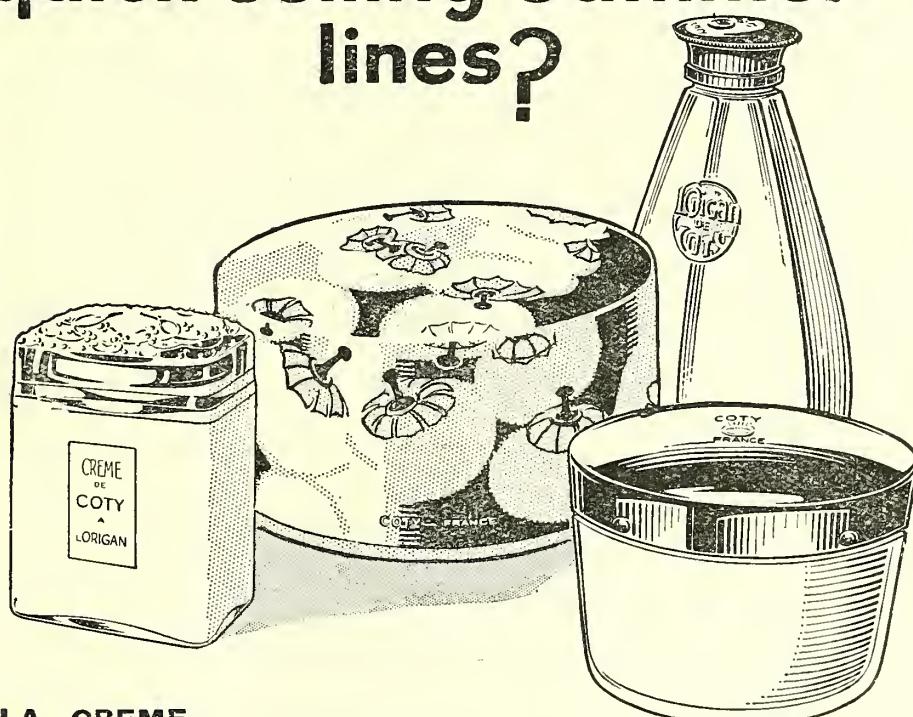
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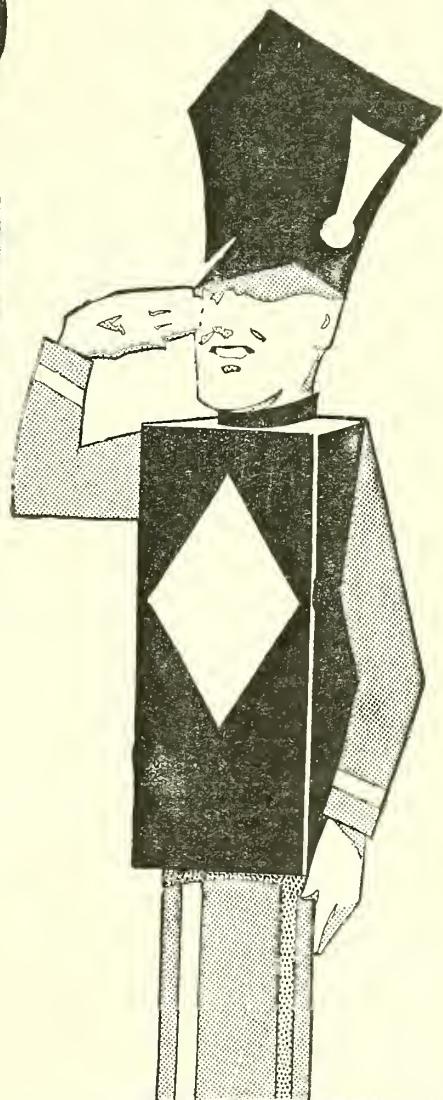
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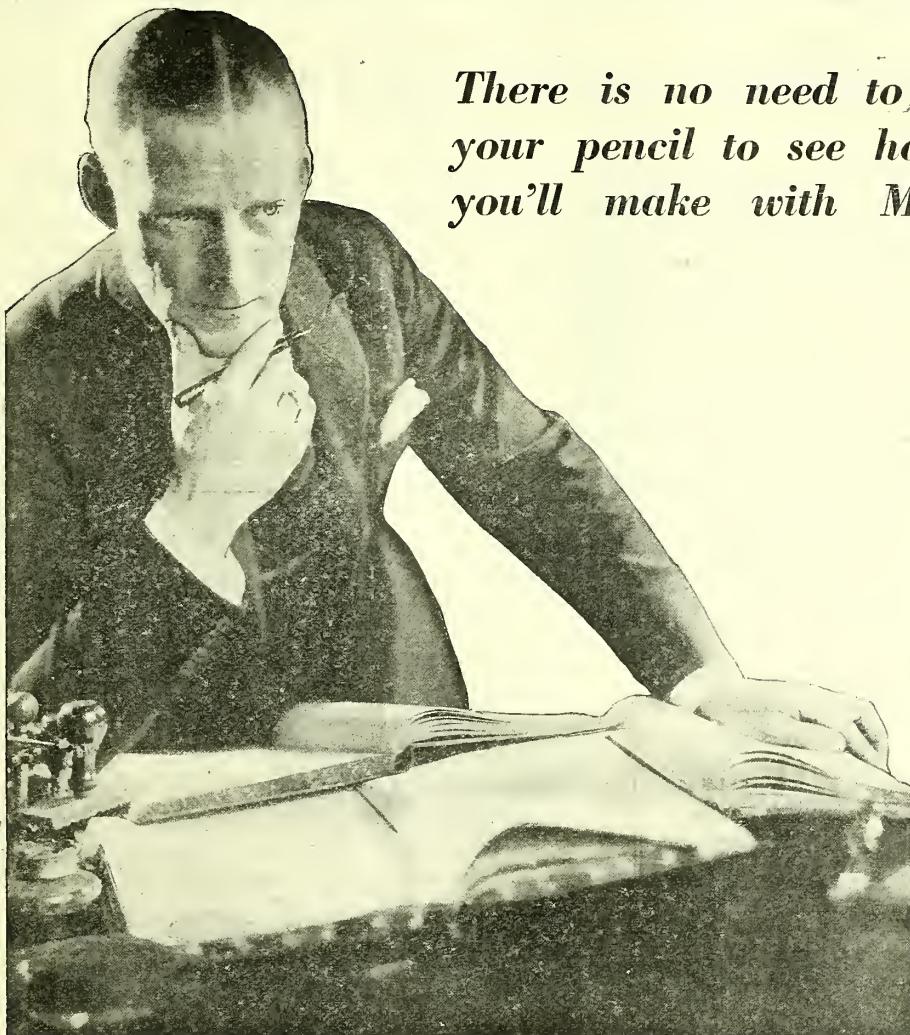
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# Maw's Page



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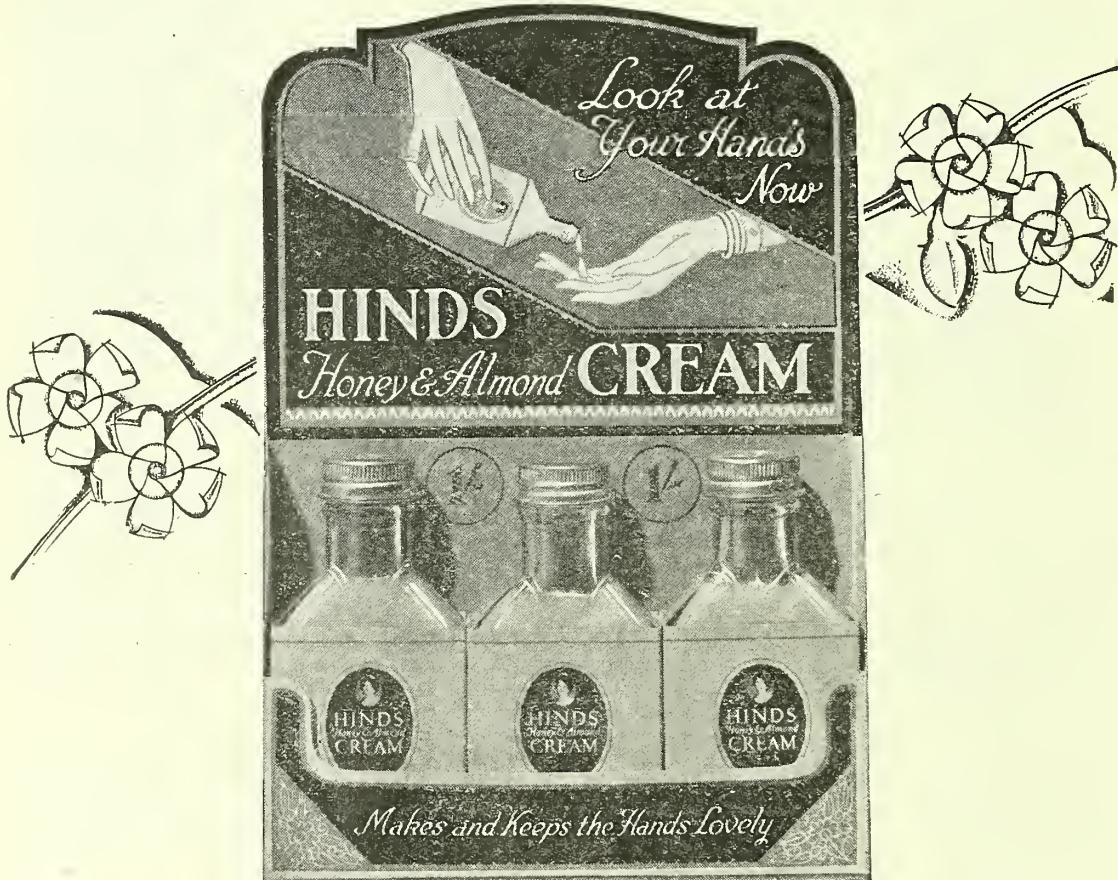
The Guardsman, The Safeguard, The Sportsman, The Meritor Blackhandled, The Meritor Express and The Meritor Olympic—these are all examples of individual lines which distinguish the pharmacist from outside competitors and single him out as the proper source of supply for shaving brushes.

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**HINDS CREAM SALES HAVE NEVER LOOKED BACK**

No gift schemes, no stunts, but just sound persistent advertising and the personal recommendation of thousands of satisfied users have kept the sales curve steadily mounting.

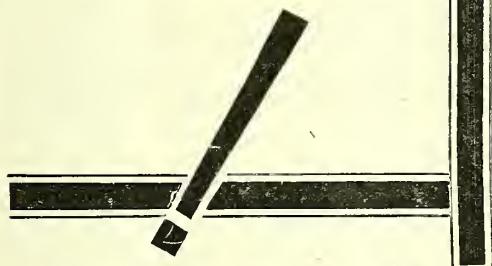
Every week, in fact every day, brings new customers who will become regular and enthusiastic users of Hinds Cream, because the public quickly realise that nothing else is quite so good for the hands.

The chemist who is pushing Hinds Cream to-day is not only making profits, but is laying a foundation stone for bigger turnover tomorrow on the firm basis of steadily increasing demand and certain customers' satisfaction.

*Attractive show material and display terms will be gladly sent on request to:—*

**LYSOL LIMITED**  
LONDON, S.W.20

*A  
Line  
worth  
noting*



# "SUSTENOID"

BRAND

## YEAST TABLETS

The absolute purity of "Sustenoid" brand Yeast Tablets appeals to the public.

Judging from the large number of repeat orders received chemists are finding this line a "best-seller." The general "get-up" is neat and dignified. The display outers are silent salesmen in themselves, and in addition extremely attractive showcards and show material are supplied free.

An outlay of 35/- shows a profit of 25/-.

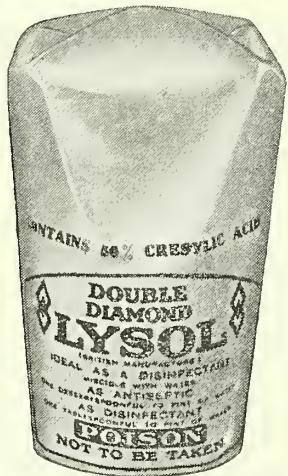
Special terms for large quantities.

Order a trial supply now and keep your till busy.

**THOMPSON & CAPPER WHOLESALE LTD.**  
MANESTY BUILDINGS, COLLEGE LANE, LIVERPOOL

# DOUBLE DIAMOND LYSOL

*Guaranteed to contain 50% Cresols*



**WILL SHOW YOU A BIGGER PROFIT**

4 oz. size	-	-	4/-	per doz.
8 oz. ,,	-	-	7/6	"
16 oz. ,,	-	-	13/6	"
32 oz. ,,	-	-	24/-	"

**Special Quotations for Large Quantities**

P. H. GALLOWAY, LTD.

WALWORTH RD., S.E.17

JULES FRÉRES

## LIME CREAM & GLYCERINE

THE BEST LINE EVER OFFERED TO THE TRADE

EQUALLY SATISFACTORY IN THE HOTTEST OR COLDEST CLIMATE

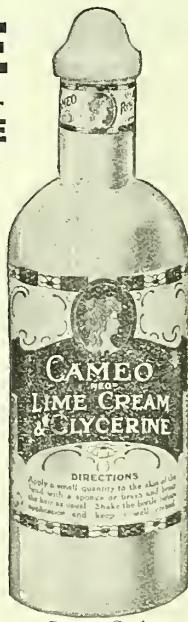
**PRICES :**

3 oz. bottles	-	-	3/9	per doz.
4 oz. ,,	-	-	4/3	"
6 oz. ,,	-	-	5/6	"
8 oz. ,,	-	-	6/6	"

SEND FOR ILLUSTRATED CATALOGUE



Ecinos Series



Cameo Series

**JULES FRÉRES LTD.**

(Sole Agents, P. H. GALLOWAY, Ltd.)

WALWORTH ROAD, LONDON, S.E.17

# GUARANTEED

**"Free o' Risk"**

PATENTED INTERIOR  
lining enables us  
to guarantee the

**"Free o' Risk"**

WATERPROOF  
STEAMPROOF  
BURSTPROOF

Wide funnel and large  
filling hole ensures  
safety

**WOULD YOU RISK  
THIS WITH ANY OTHER  
BOTTLE?**

An ordinary 'Free o' Risk'

from stock put to the  
extraordinary test of 100 hours continuous  
boiling in a soapy solution. No deteriora-  
tion in colour—no blistering—no weakening  
even in the appendage parts, such as the  
handle or the hanging tab.

## 100 HOURS BOILING TEST

AYRTON  
SAUNDERS  
& CO. LTD.

will be pleased to send  
specimen 'Free o' Risk' (any  
size or colour) post free to  
any trading chemist at the  
dozen price



FINEST LANCASHIRE FABRIC  
'Free o' Risk' impermeable lining, sunk valve,  
wide funnel, reinforced narrow seams, eyeletted tab

### GREY

	8×6	10×6	10×8	12×6	12×8	12×10	14×8	14×10
1 doz. assorted each	2/8	2/11	3/3	3/3	3/7	4/1	4/1	4/5
3 " "	2/7	2/10	3/2	3/2	3/6	4/0	4/0	4/4
6 " " per doz.*	30/0	33/0	37/0	37/0	41/-	47/0	47/0	51/0
12 " " " *	29/0	32/0	36/0	36/0	40/0	46/0	46/0	50/0

### RED

	2/11	3/2	3/6	3/11	4/5	4/5	4/11
1 doz. assorted each	2/11	3/2	3/6	3/11	4/5	4/5	4/11
3 " " "	2/10	3/1	3/5	3/10	4/4	4/4	4/10
6 " " per doz.*	33/0	36/0	40/0	45/0	51/0	51/0	57/0

Chemist's own name moulded on not less than 3 doz. Assorted sizes and colours qualify for quantity prices

\* CONTRACTS—Delivery completed before Dec. 31, 1930, with full "falling clause" advantages

**AYRTONS - LIVERPOOL, ENG**

**LEASE of IMPORTANT CITY OFFICES for SALE  
WITH VACANT POSSESSION  
42 CANNON STREET, E.C.4**

In consequence of the recent amalgamation of Messrs. Morgan Brothers (Publishers), Ltd., Proprietors of "THE IRONMONGER" and "THE CHEMIST AND DRUGGIST," with The Engineer, Ltd., Proprietors of "THE ENGINEER," the offices of the three journals have been moved to new and more commodious freehold premises, which have been acquired at 28-31 Essex St., Strand, W.C.2. The lease of the entire premises at 42 Cannon Street, of which the four well-lighted upper floors have been in the occupation of Morgan Brothers (Publishers), Ltd., the Ground Floor and Basement being sub-let to the Aerated Bread Co., Ltd., is in consequence for sale. Alternatively, the four upper floors (which have also an entrance to Garlick Hill), having a total area of about 7,000 ft., would be let. The premises are in good order. Rent £2,000 per annum, inclusive of rates.

*For further particulars, apply to*      **Messrs. FAREBROTHER, ELLIS & CO.**  
**29 FLEET STREET** - - - - - **LONDON, E.C.4**  
*or to HENRY BUTCHER & CO., 63 & 64 Chancery Lane, London, W.C.2*

**Lease of Imposing Offices for Sale**  
 WITH VACANT POSSESSION

**33 NORFOLK  
STREET - -  
STRAND, W.C.2**



For further particulars  
apply to

**WHATLEY, HILL  
& CO., 24 Ryder St.  
St. James's, S.W.1**

In consequence of the recent amalgamation of THE ENGINEER, LTD., proprietors of "THE ENGINEER," with MORGAN BROTHERS (PUBLISHERS), LTD., proprietors of "THE IRONMONGER" and "THE CHEMIST AND DRUGGIST," the offices of the three journals have been transferred to new and more commodious freehold premises which have been acquired at 28-31 Essex Street, Strand, W.C.2.

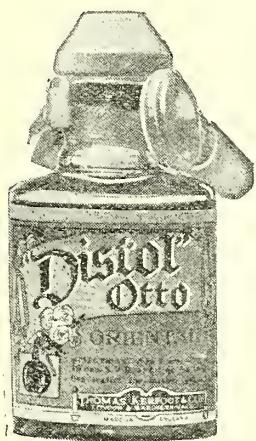
The remainder of the lease, covering a further twenty-five years, of the offices at 33 Norfolk Street, W.C.2, is in consequence for sale. This particularly well-lighted, five-storey building has an area of 8,200 sq. ft., and occupies a site at the corner of Norfolk and Howard Streets, adjacent to the Temple Station, whence Westminster and the City may be reached in a few minutes. The building is of modern construction and has a fine and distinctive elevation. It is in good order throughout. Rent £1,600. Moderate price.



*What you can do with a single ounce of*

# “DISTOL” OTTO

“Distols”  
for  
QUALITY  
with  
ECONOMY  
and  
CONVENIENCE



**Make 1 pint of Choice Perfume**

This is of “De Luxe” strength (1 in 40) and may be diluted to 1 in 80 for “triple” strength. Samples of perfumes prepared from any six “Distols” to the “De Luxe” recipe, together with a list giving actual cost at various dilutions post free on request.

**Perfume 4 lbs. Bath Crystals**

Thirty minimis are sufficient and help to produce a most pleasing and profitable article.

**Perfume 1 lb. Cold Cream**

Strength 1 in 80. Many Pharmacists however prefer to use only half this proportion.

**Perfume 1 lb. Vanishing Cream**

There are at least ten “Distols” suitable for this purpose. Write for list.

**Perfume 1 lb. Tooth Powder**

Thousands of tins of tooth powder perfumed with “Distol” Red Rose have been sold.

All these from a single one ounce bottle!

**“DISTOLS” are ideal for your own proprietary perfumes and distinctive toilet products.**

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ESTABLISHED 1797.

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# mysore government SANDALWOOD OIL

DISTILLED FROM SANTALUM ALBUM, LINN.

*This Mark is the*



**GUARANTEE**

**Trade Commissioner for Mysore in London  
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So much stress is laid on "low prices" by many people that the really vital question of quality is totally ignored. Our first consideration has always been quality, the price a minor point. May we ask you to look at your printing in this light, think of the difference in the label when comparing price and you will readily see that our contention is right?

May we send you samples of better class labels, something out of the ordinary, or better still, ask our representative to call and see you—he will only be too pleased to help you?

**SUTTLEY & SILVERLOCK, LTD.**

HIGH CLASS PRINTERS

92 BLACKFRIARS ROAD, S.E.1

# Read how Harystor helped these people to preserve the Vigour & Beauty of their hair

About three years ago, I was recommended to use "Harystor" by a friend, as I was seriously troubled on account of my hair falling out.

I am very pleased to inform you that from the very moment of my using "Harystor" this ceased, and also *all scurf on the head has disappeared*. You are quite at liberty to use this testimonial, should you so desire, as I am sure that anyone using your preparation will have the same happy results.

Yours truly (Sgd.) T. S., Middlesex.

I am and have been for some time past a regular user of "Harystor." From personal experience, I have no hesitation in saying that *for preventing the loss of hair and for the removal of scurf*, thus promoting the growth of new hair, it is unequalled.

(Sgd.) H. S., Surrey.

I am sure you will be pleased to hear how much my hair has benefited by the use of "Harystor." Apart from strengthening and maintaining the colour, I find it *increases the waviness and sets the waves so well*. I am so grateful to you for having prescribed it, and have recommended it to many friends.

Yours sincerely

(Sgd.) I. C., London.

It may interest you to know that I have used your "Harystor" for four years, rubbing a small quantity into the head every morning. As a result *I am quite free from scurf and am not troubled with falling hairs*, and in spite of advancing years, I have retained a wholly satisfactory growth which shows no evidence of deterioration. I am delighted with the results.

Yours faithfully (Sgd.) E. H. B., Surrey.

# HARYSTOR

HAIR-RESTORER  
PRESERVES & BEAUTIFIES THE HAIR

## National Advertising broadcasts these vital facts to YOUR Customers daily

In the big "Harystor" advertising campaign now appearing in the national newspapers and influential periodicals, powerful advertisements are creating thousands upon thousands of new "Harystor" customers every day.

The "Harystor" Campaign makes a direct appeal to that large and ever-increasing section of the public—the people who are worried about their hair.



Order NOW and make sure of your share of this new and steady source of profit.

Remember "Harystor" is not a one-bottle-sale product. It is a course of treatment. Every "Harystor" customer will want regular supplies. Attractive Display Units are given you free—one with every half-dozen bottles. These make useful sales-magnets and help to link your shop with the big national campaign.

Medicus, Ltd., 92, Southbridge Road, Croydon, Surrey.

**STOCK UP AND TAKE THE RICH PROFITS**

**THAT HARYSTOR OFFERS YOU**

# MERCOLIZED WAX

— : for the Complexion : —  
and

# STALLAX

— : a Shampoo : —

**T**WO substantial and well-advertised lines which show a handsome profit to the Retailer, and, moreover, may be stocked fearlessly owing to the Manufacturers' most liberal Sale or Return Guarantee.

**Both** are obtainable in two sizes, and their reputation and sterling value assure a steady turnover.

*Order through your Wholesaler, or direct from :*

**DEARBORN (1923) LIMITED**  
**37 GRAY'S INN ROAD,**                                   **LONDON, W.C.1.**

Telephone - - -

HOLBORN 9669

*Two of the Best!*



. . for  
steady  
sales.

### TRADE TERMS

12/- doz.  
Retail at 18/-

20/- doz.  
Retail at 30/-

### SHOWCARDS & CUTOUTS

A supply of attractive Showcards and Cutouts for Window Display sent post free.

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CO., LTD.  
London, N.W.6.

Men who use Anzora never change—they know it to be the finest hair fixative. That is why Anzora Cream and Anzora Viola are in constant demand. Never "run out" of Anzora—you'll lose sales if you do! All reputable wholesalers stock Anzora, but if you have any difficulty write direct.

**ANZORA**  
MASTERS THE HAIR

**EMMAH**

To-day's most popular  
**SAFETY RAZOR BLADE**  
TO FIT ALL 3-PRONGED HOLDERS

Compare with other makes **THE PROFITS YOU EARN**  
on these terms :  
**15s. Per Gross, less 10% Discount**

CASH WITH ORDER OR C.O.D.  
PLUS BONUS OF 2 DOZ. PER GROSS  
Orders executed on S/R basis nett.

**EMMAH PRODUCTS, LTD.**

14-16 LOWER CLAPTON ROAD, LONDON, E.5.

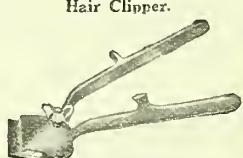
The British-Made  
Hair Clipper.

**HAIR**

**BURMAN**

**CLIPPERS**

For SURGICAL  
and VETERINARY  
PURPOSES.  
HAIRDRESSERS' CLIPPERS



Dainty Shingling  
Clippers for  
Ladies' use.  
HAIRDRESSERS' CLIPPERS

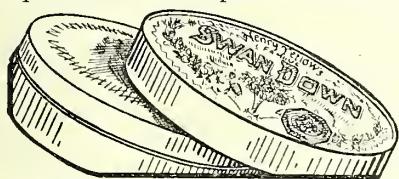
**BURMAN & Sons, Ltd., BIRMINGHAM**

# FREE PUFFS for SWANDOWN USERS

With every 1/- box of the famous SwanDown Face Powder we are giving **FREE** a handsome *velour* puff. This attractive offer will be advertised extensively in the Daily Press, Weekly and Monthly journals during the next few months. With all orders for not less than two dozen boxes of SwanDown we are giving you an equivalent number of puffs. Now is the time to re-stock

and reap the benefit of this generous advertising offer.

*Order from your usual wholesaler. Special showcards for your window and counter will be sent with your order*



## SWAN-DOWN FACE POWDERS

*In case of difficulty write to:*

**HENRY TETLOW CO.**

84 Leadenhall Street - - - London, E.C.3

The Public are Calling  
*for*

# PETAL DUST

*"Wherein the subtle savour of the Flowers sublimely dwells."*

## THE GREAT FLORAL AIR PURIFIER

*A Trial will convince you that—*

**PETAL DUST**, when once shown, creates its own demand, and is therefore a valuable adjunct to every "go-ahead" store.

**PETAL DUST**, when displayed prominently upon your counter, will attract prudent customers by the fragrance of its unique odour, which to-day is of such universal admiration.

Retails in packets at 4d. and 8d. each.

Attractive Advertising matter free on request.

Obtainable through all the usual Wholesale Houses or from Sole Producers:—

**The Rosmarine Manufacturing Co.**  
LONDON, S.E.1.

Here's  
something  
you must  
not miss

# AMAMI BONUS OFFER 60% PROFIT

	Cost Price	Selling Price
3 doz. 6d. No. 1 Sachets	13s. 6d.	18s. 0d.
3 doz. 6d. No. 5 Sachets	13s. 6d.	18s. 0d.
3 doz. 3d. No. 1 Sachets	6s. 9d.	9s. 0d.
3 doz. 3d. No. 5 Sachets	6s. 9d.	9s. 0d.
Three 6d. No. 7 Sachets		1s. 6d.
Two 6d. No. 8 Sachets		1s. 0d.
Two 6d. No. 9 Sachets		1s. 0d.
One 6d. No. 10 Sachet		6d.
One 6d. No. 1 Sachet		6d.
<b>INCLUDED</b>		
<b>FREE</b>		
	£2 0s. 6d.	
less 10% one month	4s. 0d.	
		£2 18s. 6d.

BACKED up by a national press campaign Amami Shampoos are a splendid selling line for Autumn . . . and this generous Bonus offer makes them specially attractive for you.

Send now for your Bonus parcel—to your usual wholesaler or direct to—

**SHOW  
MATERIAL  
FREE**

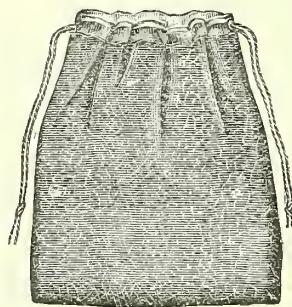
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royds

**SPONGES  
BAGS  
AND  
HOLDALLS**



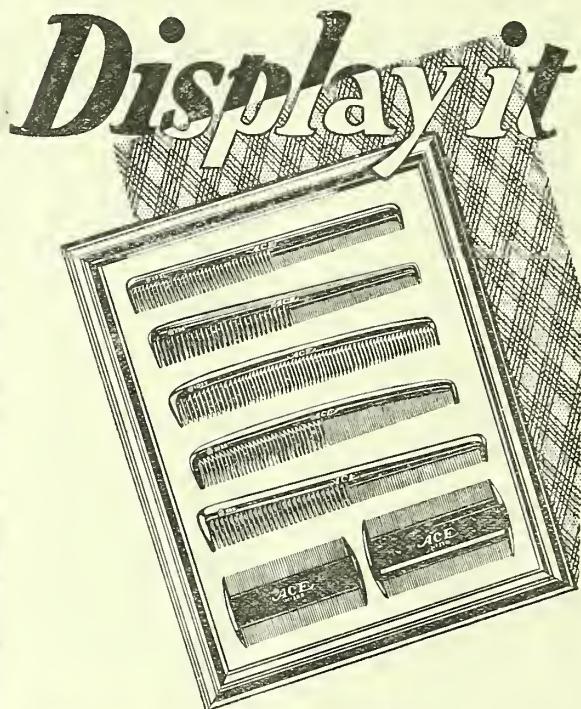
BRITISH MADE



**WRITE FOR PRICE LIST**

Manufactured by

**William Toogood  
LIMITED**  
77 SOUTHWARK STREET  
LONDON, S.E.1



*for speedy  
sales . . .*

*Write for full particulars of these attractive frames :  
AMERICAN HARD RUBBER (BRITAIN) LTD.  
13a Fore Street,  
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Place this display frame prominently on the counter. It will speedily sell your stock of Ace Combs. These Combs are remarkably reliable and of the finest workmanship. They set the hair perfectly without breaking or injuring it in any way. So—let this new frame sell your Ace Combs.

**ACE** ♠  
TRADE MARK  
**COMBS**



# MASON PEARSON HAIR-BRUSH

*The Brush  
which is  
asked for*

There is only one hair-brush which is equally suitable for people of both sexes and all ages:—The "MASON PEARSON" Brush. It brushes much more quickly than any other brush. It brushes more efficiently. It cleanses the scalp more gently and thoroughly than any other brush. It disentangles long hair without tugging it, and restores the "set" to ruffled hair.

The reason is that all "MASON PEARSON" Brushes are made of the most perfect hair-brushing material—the black unbleached bristle of the Indian Wild-Boar—which, arranged by our special patented method in a pneumatic rubber cushion, makes the highest grade Hair-Brush obtainable to-day.

The "MASON PEARSON" Brush is known and asked for everywhere by its name.



The brushes are made in eight models, retailing from 3/6 to 18/6, all subject to generous discounts giving you a substantial living profit. Can be supplied through your usual wholesaler.

MASON PEARSON SELLING AGENCY, LTD., 59 NEW OXFORD ST., LONDON, W.C.1



IF IT  
SHAVES  
IT'S  
WANIE

The Blade that SELLS as it SHAVES—  
"LIKE GREASED LIGHTNING!"  
Obtainable from all leading Wholesalers.

FREE SAMPLE ON REQUEST

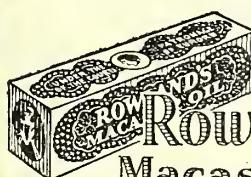
Dept. C.D., WANIE DISTRIBUTING Co., 89 Aldgate High St., E.C.3  
North'n Distributors: S. KALISKY (Aldgate) Ltd., 16 Withy Gv., Manch't'r.  
Irish Free State Agents:  
Moore, W. A. FREEDMAN & CO., 21 Merchant's Quay DUBLIN.

For 137 years

Rowland's Macassar Oil has been a favourite dressing for the hair. It keeps the hair healthy, and prevents the encroachment of greyness and baldness.

Of all Wholesalers.

RETAIL,  
3/6, 7/- & 10/6  
P.A.T.A.



Rowland's  
Macassar Oil

A. ROWLAND & SONS, Ltd., 112 Guilford St., London, W.C.1

## BUTYWAVE SHAMPOOS

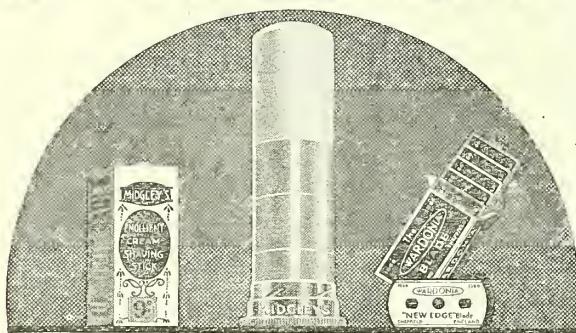
PROFIT AS ALWAYS

80%

ON SIX DOZEN LOTS

NETT COST £1·1·7

# FREE!



Genuine 9d. Midgley's Full-size Shaving Stick with each 1/3d. packet of Wardonia "New Edge" Blades purchased.

That's the offer thousands of retailers are making good profits on. Widely advertised in the National and Provincial Press. Generous supply of Window and Counter Display Matter FREE with every order. Delivery guaranteed of first order whatever quantity, so order generously and at once from your usual wholesaler or direct

**Enormous Demand  
Order at once  
50% PROFIT  
FOR YOU**

## TRADE TERMS:-

- 1 to 4 Cartons (per carton) 21/-
- 5 Cartons (per carton) 20/-
- 10 Cartons (per carton) 19/-
- 20 Cartons (per carton) 18/-

**How Packed:**  
In attractive Display Carton  
CONTAINING—  
**24—PACKETS of 5  
WARDONIA Blades  
& 24-9d. Midgley's  
Shaving Sticks.**

RETAIL VALUE OF ABOVE CARTON **30/-**



FOR TWO MONTHS ONLY

Sole Makers :

**THOMAS WARD & SONS LTD**

Wardonia Works, Sheffield, England

# CELLOPHANE

The ideal transparent wrapping absolutely harmless, air and grease proof, as used by all the leading Perfumers, Soap Manufacturers, etc., etc., for wrapping Soaps, Drugs, Tablets, Bath Crystals, Perfumery, Surgical Dressings, Sponges, Puffs, Soothers, Tooth Brushes and all Articles of Toilet.

Cellophane can be had in sheets, all sizes and colours; also in the shape of Bags, Discs, Envelopes, printed or not, allowing the contents to be seen by transparency.

Cellophane wrapped goods look better—keep better—sell better.

Cellophane protects, beautifies, and adds the quality touch.

*Prices, Samples and Particulars from*  
**THE CELLOPHANE COMPANY LTD.**  
**7, 8 and 9 Bird Street, LONDON, W.1**  
Also 305-7 PRODUCE EXCHANGE, MANCHESTER  
35 MILLER STREET, GLASGOW

## "ODENTIC" PLATE BRUSH

Regd. No. 417637.

From all Wholesalers.

Packed in  $\frac{1}{2}$ -dozen Display Boxes.

Manufacturers:

**W. R. Speer & Son** (EST. 100 YEARS)  
215 DALSTON LANE - - LONDON, E.8  
Agent for S. Africa—C. GORDON DAVIES & CO.,  
National Bank Buildings, Pritchard Street, Johannesburg.

## G. B. KENT & SONS, LTD.

Are known the World over as the Largest Manufacturers of

## BEST BRITISH BRUSHES

Please write for full Particulars to :—

**75 FARRINGDON ROAD, E.C.1.**



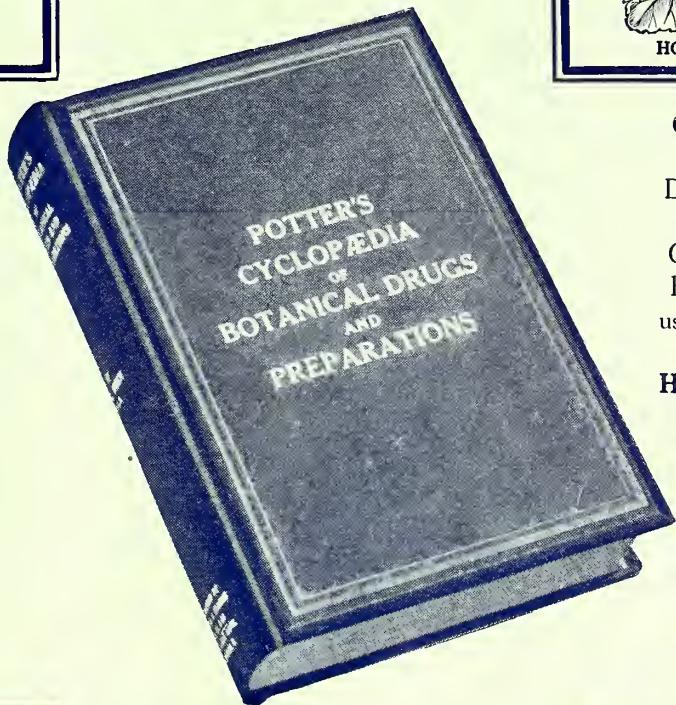
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Botanical Drugs  
used in Medicine.

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**5/- net**

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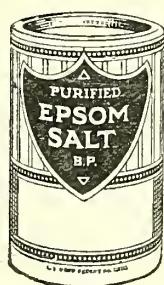
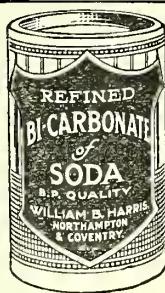
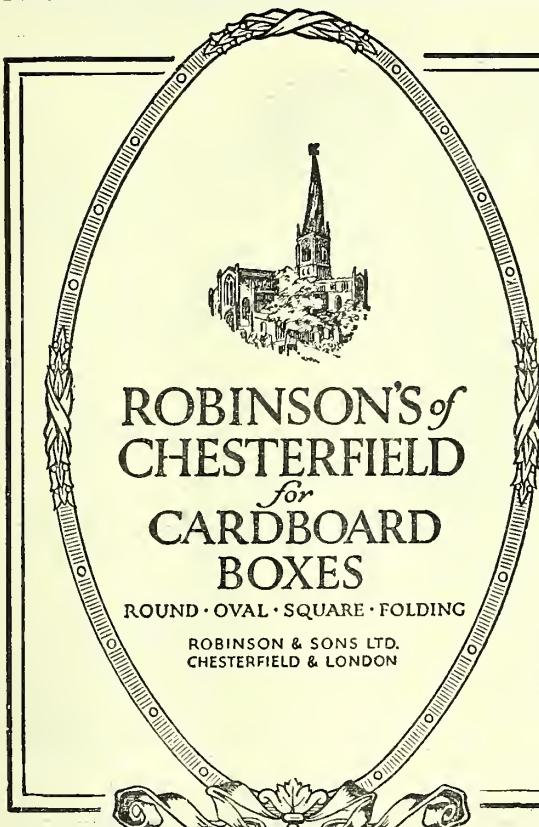
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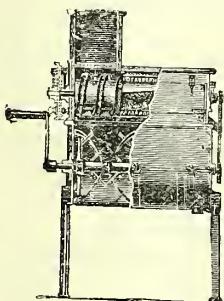
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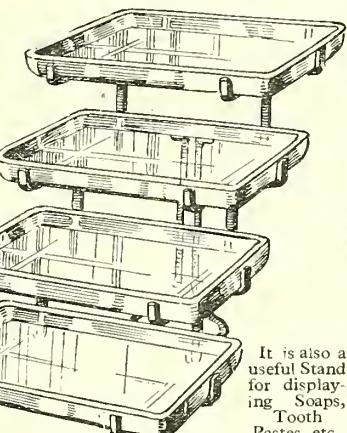
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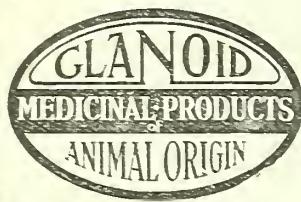
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*Some popular ready sellers :*

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At the Liverpool County Court, on August 6, before Judge Dowdall, the Pharmaceutical Society of Great Britain sued Miss Stephenson, 270 Kensington, an unregistered person, for the recovery of a penalty for having sold a bottle of Jeyes' Fluid. The analysis showed that the liquid contained 15.2 per cent. of homologues of carbolic acid. Mr. Nield, for the Society, said the shop in question was a chemist's shop belonging to a limited company. There were two shops, and the father of the defendant was a qualified chemist, but was at the other shop at the time. Judge Dowdall: It is a very technical offence, but I daresay it is very necessary for the protection of the public. Judgment was entered for the plaintiffs for £5, with £7 7s. costs.

#### Miscellaneous

**GOLF.**—The Northumberland and Durham Chemists' Golf Association took part, on August 6, in a bogey competition on the City of Newcastle Club's course at Gosforth, for the Evans cup. The result was a tie between Mr. W. Cosans (handicap 20) and Mr. T. S. Stonier (handicap 12). In a replay, Mr. T. S. Stonier won with a score of one down.

**OUTING.**—The twelfth annual outing of the Thermogene Co., Ltd., was held on August 2. The party assembled at the Haywards Heath works and paid a visit by motor-coaches to Canterbury, which was reached before lunch. After visiting the cathedral, the main source of attraction, the party split up into groups to explore the many interesting parts of the ancient city. An alternative homeward route through the hop fields of Kent concluded a very enjoyable day.

**IN THE COURTS.**—At the Guildhall Justice Room, London, E.C., on August 7, Robert Pratt, a clerk, was sentenced to three months' hard labour for theft from his employers, Questier & Co., Ltd., chemical manufacturers, New Broad Street, E.C.—At North London Police Court, on August 9, Alec Gillard (49), steward, was fined £10 for having stolen food, value 9s., belonging to his employers, W. J. Bush & Co., Ltd., manufacturing chemists, Ash Grove, E.—At Wilnecote Petty Sessions, recently, Frank V. Jessop was fined 10s., with costs, for having sold a bottle of Jeyes' No. 2 Fluid not duly labelled.

## Irish News

#### Brevities

At Bushmills Petty Sessions, recently, William Greene, Ballymoney, was summoned for selling lysol from a motor-van, he not being a qualified person. A fine of 1s., with costs, was imposed.

Sir Thomas Robinson (Hayes, Conyngham & Robinson, Ltd.), has been selected by the Dublin Chamber of Commerce and the Dublin Mercantile Association as one of the candidates who are to contest the seats for the five special commercial members of the Dublin Corporation in the coming municipal elections.

Michael J. Ahern, described as a Canadian ex-soldier, was charged in Dublin, recently, with having broken into the shop at 116 Parnell Street, and stolen 27s. 9d. in cash, and articles to the value of £6 12s. 9d., the property of Mr. P. G. Bourke, Ph.C. He was also charged with doing damage to the extent of 12s. to the furniture. The justice imposed a suspensory sentence of six months' imprisonment, the accused undertaking to pay compensation for the articles taken.

Negotiations are still proceeding between the Central Pharmaceutical Committee (the Executive Committee of the North Irish Pharmacists' Association) and the Ministry of Labour on the subject of medical benefits. The draft regulations have been under consideration, and it is understood that several modifications in the interests of chemists have been agreed to. A meeting of the Medical Benefit Council for Northern Ireland will take place in the near future, and the election of the various area committees will follow.

## Scottish News

#### Brevities

The death is announced of Dr. George Robertson, Dunfermline, who was well known to many Fifeshire chemists.

Dr. Henry Dryerre has been appointed physiological biochemist to the Animal Diseases Research Institute at Moredun, Edinburgh.

Mr. James A. Wright, son of Mr. George Wright, chemist and druggist, Newhaven Road, Edinburgh, has gained the degree of LL.B.

Miss Jenny Fenton, daughter of Mr. Peter Fenton, chemist and druggist, 33 Whytescauseway, Kirkcaldy, has been elected a member of the Institute of Hygiene.

The Methil Merchants' Association, whose secretary is Mr. R. F. Hughes, chemist and druggist, has protested against the restriction of bus facilities in High Street.

The Edinburgh Pharmacy Athletic Club (bowling section) held the final tie for the McIlwrick challenge cup on Colbridge bowling green on August 6, when Mr. Peter Nisbet beat his opponent, Mr. J. H. Tainsh.

Mr. W. C. Blake, chemist and druggist, Strathaven, Lanarkshire, was recently involved in a collision while driving his car through Saltcoats. Although suffering slightly from shock, Mr. Blake and his passengers were unhurt.

## New Companies and Company News

P.C. means Private Company and R.O. Registered Office.

**G. R. SHAW, LTD. (P.C.).**—Capital £500. Objects: To acquire the business of a chemical merchant now carried on by G. R. N. Shaw at 6 St. Mary's Gate, Manchester, as "G. R. Shaw," and to carry on the business of manufacturing chemists and druggists, chemists' and druggists' sundriesmen, etc. The permanent directors are: G. R. N. Shaw and Mrs. Alexandra E. M. Shaw. Solicitors: Charles Howard & Co., 29 Princess Street, Manchester.

**A. NELSON & CO., LTD. (P.C.).**—Capital £3,000. Objects: To carry on the business of general and manufacturing chemists and druggists, manufacturers of and dealers in all kinds of toilet requisites, etc. The directors are: E. L. N. Nelson, Burchetts Green, Maidenhead, D. W. Everitt, Hill Cottage, Littlewick Green, Maidenhead, and W. B. Arrowsmith, 33 Heathfield Road, South Croydon. Solicitors: John Hill & Son, 126 Seymour Place, Marylebone Road, W.1. R.O.: 73 Duke Street, Grosvenor Square, W.

**QUAIN SUNLIGHT LAMPS, LTD.**—At a meeting held in London on July 15, it was resolved that this company be wound up voluntarily. Mr. G. Sinnott, 110 Cannon Street, E.C.4, was appointed liquidator.

**COSCUTIS CO., LTD.**—At a meeting held in London on August 7 it was resolved that this company be wound up voluntarily. Major C. H. Nathan, Norfolk House, Norfolk Street, W.C.2, was appointed liquidator.

## Gazette

#### Bankruptcy Acts

##### RECEIVING ORDER

**CHRIMES, A., 12** Thorncleif Grove, Levenshulme, Manchester, and lately carrying on business at 100 Portland Street, Ashton-under-Lyne, "wholesale perfumer."

## Trade Notes

**FREE PUFFS.**—Henry Tetlow Co., 84 Leadenhall Street, London, E.C.3, give particulars in their advertisement of a gift for users of Swandown face powder.

**SCHOLL BONUS OFFER.**—The Scholl Manufacturing Co., Ltd., 188 St. John Street, London, E.C.1, have extended the date to which their bonus offer in connection with Zino Pads and bath salts is available. Particulars are given in the advertisement pages.

**S. MAW, SON & SONS, LTD.**, Aldersgate Street, London, E.C., point out that energy and enterprise are essential for the well-being of a business. The company's efforts are instanced by their new lines of shaving brushes, which enable chemists to sell articles of a distinctive nature.

**STUDENTS' BOOKS.**—The following advertisers in this issue offer books suitable for students:—

Churchill, J. & A.  
Foyle, W. & G., Ltd.  
Lewis, H. K., & Co., Ltd.  
Pharmaceutical Press.  
Pitman, Isaac, & Sons, Ltd.  
Potter & Clarke, Ltd.  
Prescriber, The.  
Squire & Sons, Ltd.

**EDUCATIONAL INSTITUTIONS.**—The following is a list of the educational institutions advertising in this issue:—

Birmingham Central Technical College.  
Birmingham University.  
Bradford Technical College.  
Brighton Technical College.  
Bristol University.  
British Optical Association.  
British Optical Institute.  
Cass, Sir J., Technical Institute.  
Chelsea Polytechnic.  
College of Preceptors.  
Educational Institute of Scotland.  
Glasgow Royal Technical College.  
Gordon Hall School of Pharmacy.  
Harris Institute.  
Heriot-Watt College.  
Huddersfield Technical College.  
Institute of Ophthalmic Opticians.  
Kingston-upon-Thames Technical College.  
Leeds Technical College.  
Leicester Technical College.  
Liverpool School of Pharmacy.  
London College of Pharmacy.  
London Hospital Medical College.  
Manchester Municipal College of Technology.  
Manchester Tutorial College.  
Manchester University.  
Merchant Venturers' Technical College.  
National Association of Opticians.  
Northampton Polytechnic.  
Northern Polytechnic.  
Norwood Technical Institute.  
Nottingham University College.  
Plymouth Technical College.  
Robert Gordon's College.  
Royal Dental Hospital School.  
Royal Dispensary, Edinburgh.  
Royal Veterinary College.  
St. Andrews University.  
Salford Royal Technical College.  
School of Optics, Ltd.  
School of Pharmacy, The.  
Scurr, C. A.  
Simpson, W.  
South of England College of Pharmacy.  
Sunderland Technical College.  
Westminster College of Pharmacy.  
Wimbledon Technical College.  
Woolwich Polytechnic.  
Worshipful Company of Spectaclemakers.

## Trade-Mark Applications

The figures in parentheses refer to the classes in which the marks are grouped. A list of classes and particulars as to registration are given in "The Chemist and Druggist Diary," 1930, p. 341.

(From "The Trade Marks Journal," July 23, 1930.)

- "DUROBASE"; "DUROSALT"; for manufacturing chemicals (1). By British Dyestuffs Corporation, Ltd., Hexagon House, Blackley, Manchester. 513,820/821. (Associated.)
- "FIRST AID' SOAP" with label design ("First Aid" disclaimed); for disinfectant soap (2). By The Scottish Co-operative Wholesale Society, Ltd., 95 Morrison Street, Glasgow. 511,240. (Associated.)
- "Picot" with device of grapes ("Picot" and device of bunches of grapes disclaimed); for medicinal preparations (3). By Picot Laboratories, Inc., 119 Clinton Avenue, Buffalo, New York, U.S.A. 509,124.
- "ORYGENE"; for medicated mouth wash (3). By Parke, Davis & Co., Foot of McDougall Avenue, Detroit, Michigan, U.S.A. 509,551.
- "OJOY"; for preparations for the treatment of insect bites, etc. (3). By B. P. Gray, 14 Suffolk Street, Birmingham, and by Florence S. P. Whitecombe-Brown, Oakbank, Crowstone Road, Westcliff-on-Sea. 511,358.
- "DALZO-FLEX"; for medicated plasters (3). By A. de St. Dalmas & Co., Ltd., 40½ Belgrave Gate, Leicester. 513,529.
- "EPHRELIX"; "EPHRELUSS"; for medicinal chemicals (3). By Evans, Sons Loscher and Webb, Ltd., 56 Hanover Street, Liverpool, Lancashire. 513,751/753. (Associated.)
- "SIDIS"; for instruments, etc., for the aid of deaf persons (11). By A. Lewis, 43 Lincoln Road, Blackpool. 512,439.
- "RADISPA"; for radium appliances (11). By C. Abrahams, 646 & 647 Salisbury House, London Wall, London, E.C.2. 513,544.
- "SANT-AMINA"; for beverages, etc. (42). By A. V. Keller, 10 Valley Green, Welwyn Garden City, Hertfordshire. 512,371.
- "No. 4711 BLAU GOLD" with device of bell; for perfumes (48). By P. P. Mühlens, 26 Glockengasse, Cologne, Germany. B511,626.
- "BONNE CHANCE"; for perfumery, etc. (48). By The Dubarry Perfumery Co., Ltd., Goldstone Laboratories, Hove Park Villas, Hove. 510,730.
- "NORMALOGEN"; for dentifrices (48). By S. J. Croucher, 35 Craven Street, Strand, London, W.C.2. 511,925.
- "FOLLEX"; for toilet shampoos (48). By F. Godfrey, The Renew Hair Institute, Crich Carr, Whatstandwell, Matlock, Derbyshire. 511,953.

(From "The Trade Marks Journal," July 30, 1930.)

- "DURATOL"; for chemicals (1). By British Dyestuffs Corporation, Ltd., Hexagon House, Blackley, Manchester. 513,819. (Associated.)
- "FLYBAT COMBATS ALL INSECTS" in oblong shape; for liquid insecticides (2). By The Astral Chemical Co., 15 Royal Hill, Greenwich, London, S.E.10. 503,058.
- "R AND C" in triangular shape; for medicinal animal gland preparations (3). By Reed & Carnick, 155 to 159 Van Wagenen Avenue, Jersey City, New Jersey, U.S.A. B502,397.
- "GROPHOS"; for fertilisers (2). By W. R. Hopkinson, 41 Jewry Street, Winchester. 513,912.

## Business Changes

MR. C. W. FIRTH, chemist and druggist, has opened a pharmacy in High Street (corner of London Road), Dorking.

RUSHTONS (CHEMISTS), LTD., have purchased the business of the late Mr. A. H. Messenger, chemist and druggist, 107 Sussex Road, Southport, as from August 18. A new branch will shortly be opened at 50 Sandy Lane, Skelmersdale, Lancashire.

## Marriages

**BOWEN-JONES.**—At Penybont Baptist Church, on August 9, by the Rev. R. Morris, Arenig Bowen, M.P.S., son of the late Mr. T. Bowen, School House, Llannwchlyn, to M. Ceinwen Jones, M.P.S., daughter of Mr. W. J. Jones, Cwylfa, Llandyssul.

**JONES-CONSTABLE.**—At St. Mary's Church, Westerham, Kent, on August 6, by the Rev. Canon H. B. Boyd, formerly vicar of Westerham, John Edward Jones, M.P.S., son of Mr. J. H. Jones, Bersham, to Beatrice Elsie Constable, adopted daughter of Mr. G. Burgess, Westerham.

**MURRAY-SUNDERLAND.**—At Holy Trinity Church, Cowes, on August 7, by the Rev. C. E. Paterson, M.A., Ranald Macdonald Murray, M.P.S., Middlesbrough, fourth son of the late Mr. Lewis Murray, schoolmaster, Lewis, Scotland, to Dorothy Marianne Sunderland, B.Sc., younger daughter of Mr. Ezra Sunderland, Southport.

**SMITH-WAIDE.**—At Brunswick Wesleyan Chapel, Leeds, on August 6, Thomas Warnock Smith, B.A., to Alice Mary Waide, youngest daughter of Mr. Thomas Waide, Applegarth House, Woodlesford.

**SYMES-EASTMOND.**—At Mount Pleasant United Methodist Church, Exeter, on August 2, William Thomas Symes, a director of Evans, Gadd & Co., Ltd., manufacturing chemists, Exeter, to Gertrude May Eastmond.

**WILLIAMS-LLOYD.**—At the Tabernacle, King's Cross, London, N., on August 4, W. Lloyd Williams, M.P.S., son of Mr. Owen Williams, Cross Hands, Llanelli, to Phyllis Mary Lloyd, M.P.S., daughter of Mr. W. Lloyd, late of Aberaman.

## Deaths

**ARMITAGE.**—On July 24, suddenly, Mr. John Henry Armitage, B.A., Hookholme, Park View Crescent, Roundhay, Leeds, aged seventy-one. Mr. Armitage, who was a solicitor, was chairman of Taylors' Drug Co., Ltd., for over fifteen years.

**BROWN.**—At Felixstowe, on August 9, Mr. Frederick Brown, chemist and druggist, 17 Victoria Parade, aged sixty-eight. Mr. Brown carried on business at Felixstowe for forty years. He was a Past Master of Felix Lodge, and a Past Assistant G. Pursivant of the Province of Suffolk. He had also been a leading member of the Felixstowe Chamber of Trade. The funeral, which took place on August 12, was numerously attended.

**JENKINS.**—At the Lord Ninian Hospital, Cardiff, on August 3, following an operation, John Rhys Goronow Jenkins, only son of Mr. J. D. Jenkins, chemist and druggist, aged nine. Mr. and Mrs. Jenkins will be remembered as the chairmen, respectively, of the Executive and Ladies' Committees at the Cardiff Conference. Their son was taken ill suddenly on the Thursday following the Conference, and he passed away three days later. The sympathy of all who attended the Conference will go out to Mr. and Mrs. Jenkins in their grievous and untimely loss. The funeral on August 7 was attended by a large company of relatives and friends. Requiem Mass was celebrated by the Rev. Father C. Ottway, of St. Joseph's, who also officiated at the cemetery. The Cardiff Pharmacists' Association was represented by Messrs. H. F. Davies, D. Harbottle, E. G. Howell, H. Jones, E. Poole, J. Reynolds, R. Robinson, F. Taylor and W. R. Williams. The many floral tributes included wreaths from Mr. and Miss Jabez Jones, Mr. and Mrs. S. W. Hague, Mr. and Mrs. J. Reynolds, Mr. and Mrs. A. F. Mogg, Mr. and Mrs. W. R. Williams, Mr. and Mrs. E. G. Howell, Mr. and Mrs. J. T. Day, Mr. and Mrs. D. J. Williams (Bath), Mr. Alec and the Misses Johnson, Mr. and Mrs. J. Murray,

Captain, Mrs. and Miss Alethea Lacey, and the Cardiff Pharmacists' Association.

**KINKEAD.**—At Richmond Park, Kingston, Jamaica, on July 16, Mr. E. D. Kinkead, wholesale and retail druggist, 20 King Street, Kingston.

**KIRKBY.**—On August 12, Phoebe Ann, the dearly loved wife of Mr. William Kirkby, M.Sc., Ph.C., Winster House, Thornfield Road, Heaton Moor.

**MASSIE.**—At Manchester, on July 5, suddenly, Mr. Duncan Massie, chemist and druggist, aged fifty-one. Mr. Massie joined the staff of Boots Pure Drug Co., Ltd., Nottingham, in 1912, and was associated with the company for several years.

**MOORE.**—At his residence, Greycot, Augusta Street, Grimsby, on August 1, Mr. John Arthur Moore, chemist and druggist, aged seventy-one. He had been in business in Freeman Street for many years, and was head of Moore's (Chemists), Ltd. Mr. Moore was a vice-president of the Constitutional Club and a prominent bowler.

**PADDON.**—At an Edinburgh nursing home, on August 6, Bessie Kate Miles, beloved wife of Frederick J. Paddon (representative of S. Maw, Son & Sons, Ltd., London E.C.1), 91 Morningside Drive, Edinburgh.

**WILKINSON.**—At Padiham, on August 7, Mr. R. Wilkinson, formerly manager of The Padiham Chemical Co., Ltd., Padiham, Burnley, aged sixty-five.

## Personalities

**MR. A. H. ROBERTSON.** chemist and druggist (Vince & Co., chemists, Cheapside), Lancaster, took a principal part in the recent local historical pageant.

**MR. ROLAND G. MARTIN.** son of Mr. H. A. Martin, chemist and druggist, Leicester, has been awarded the first-class honours diploma (final year) in electrical engineering at Loughborough College, and has also obtained the B.Sc. degree (engineering) as an external student of London University.

**MR. JOHN CHRISTIE.** M.P., president of the South African Pharmacy Board, is at present on a visit to London. In the course of an interesting conversation, Mr. Christie informed us that it is nineteen years since he last visited this country, and that he is impressed by the great changes he sees. After paying a short visit to Scotland, Mr. Christie intends touring in France and Germany. He will also be one of the South African representatives (it will be noticed that Mr. Christie is a member of the South African Parliament) at the International Parliamentary Conference on Commercial legislation, which is being held in Brussels, on September 6-13, and will visit the United States. Mr. Christie may be addressed at South Africa House, Trafalgar Square, London, W.C.2, and will be glad to get in touch with old friends.



MR. J. CHRISTIE

## Information Department

### INFORMATION WANTED

Postal or telephone information with respect to makers or first-hand suppliers of the undermentioned articles will be appreciated.

B. 79. Colos eau de Cologne	P. 118. Metchnikoff's sour bath soap
R. 78. "Cowslip Balm"	B. 79. R.G. or R.C. suppositories
C. 118. "Magnus" safety razor	S. 88. "Victoria" tablets
B. 78. World's sanitary fluid	

# Observations and Reflections

## By Xrayser III

### Careful Study

of Dr. MacKenna's comments on the effects of soaps, creams and other preparations used for the skin and hair (*C. & D.*, August 9, p. 190), forces one to the conclusion that they lend support to the suggested addition to our stock of knowledge of some acquaintance with physiology. While there may appear to be a certain amount of exaggeration in Dr. MacKenna's description of untoward effects of particular preparations, it seems to me that he refers to continued use and not to occasional application, with intervals during which Nature can re-establish a position of normality. In the case of cold creams and vanishing creams, for example, nothing should be said or done to encourage their continual use in such a way as to keep the sebaceous and sweat glands blocked. Washing the skin with suitable soap ought to be regarded as an essential, whatever beauty specialists may say; and it should be recognised that the proper time to apply an appropriate cream is after drying the skin at the conclusion of the ablution. Removal of the natural fat as a result of washing will then be made good, and the condition of the skin should be all that is desired in a very short time. A useful tip for keeping the skin in condition when rough work is being done is to oil the hands freely before washing.

### Industrial Spirit

may now be used, we are advised (*C. & D.*, August 9, p. 184), in the preparation of lot. plumbi evap. conc., N.I.P., and pigment. ceruleum, N.I.P., for general sale, provided permission has previously been obtained from the Board of Customs and Excise. Some chemists may be grateful for this concession, but I am afraid many of them regard the recognition of industrial spirit as a permissible ingredient of medicinal preparations with distinct disapproval. There is so much trouble attending the stocking and dispensing of the spirit that the value of the concession to use it is minimised so far as chemists are concerned. In the case of N.H.I. prescriptions, the conditions attaching to the dispensing of preparations made with the industrial spirit are more stringent than those enforced when medicaments affected by the D.D.A. regulations are dispensed, owing to insistence upon the prescriptions being copied in the prescription-book with the full name and address of both patient and doctor. There ought to be a special fee allowed for dispensing prescriptions in such circumstances. Use of the industrial spirit is, of course, encouraged by the authorities for reasons of economy, but it is unreasonable that saving in expense should be effected at the cost of the chemist who is expected to comply with official regulations that encroach sadly upon his business time.

### Facing the Facts

is obviously the first thing necessary when an unsatisfactory state of affairs exists; and I should imagine your correspondent who comments upon the address of the chairman of the B.P.C. (*C. & D.*, August 9, p. 205) would be the first to admit that this is what Mr. Humphrey has done. A clear statement of the existing position having been presented to us, with a survey of the ground held to come rightly within the province of pharmacy, the next step would appear to be consideration of ways and means—ways of proceeding to capture the territory claimed and means for enabling the necessary steps to be taken. It is well to recognise, as "Heretic" does, that parliamentary powers are not likely to be forthcoming to enable us to secure all the business in chemicals and drugs that has drifted into other hands. Did not Mr. Humphrey, towards the close of his address, advocate individual

effort, co-operation and combined action? Such are the means, I take it, to which we must resort, and the immediate problem awaiting solution is whether or not these will be employed and how we ought to proceed.

### Official Syrups

were the subject of observation on this page some time ago, when it was pointed out how few they now are in comparison with the number that apothecaries were expected to make and keep sound in the seventeenth century, while some of the Continental dispensaries of the eighteenth century contained formulas for about two hundred syrups. In a letter received from a Cairo correspondent it is remarked that it is not necessary to go so far back as the seventeenth or eighteenth century for examples of dispensaries containing numerous formulas for syrups, since the 1928 edition of Dorvalt's "*L'Officine*" contains formulas for 600. These, of course, are not all official preparations, but it certainly indicates that "French prescribers are out to make their medicine palatable," unlike so many English doctors, who "seem deliberately to do the other thing." Our Cairo friend wonders how the English prescribers can justify this preference for nastiness; and he would wonder still more if he had occasion to dispense much medicine from the new National Insurance Formulary, about which we are hearing so much at present. Elegant pharmacy has been encouraged by British pharmacists for many years past, and it seems clear that the compilers of the British Pharmaceutical Codex acted on the assumption that medicine ought to be made as little disagreeable as possible. But sweetening and flavouring agents are decidedly out of favour now, so far as National Health Insurance dispensing is concerned, and it is to be feared that private patients may often have to take medicine that is needlessly unpleasant because doctors form their prescribing habits largely in Insurance practice.

### The Variations

in the formulas for unguentum basilicon are so few in respect of the ingredients that but little scope is given for the making of suggestions as to the constituent referred to in your French News on August 9 (p. 186). The late Mr. Wootton wrote a concise but sufficient account ("Chronicles of Pharmacy") of the origin of this preparation. Although Celsus gets the credit of being its inventor because the formula first appears in his treatise, it seems from that author's reference to its name (*βασιλικόν*) that it was then generally known to others. It was at that time a black ointment consisting of panax (almost certainly of opopanax), galbanum, pitch, resin and oil. The MS. which has come into the hands of M. Thomas is said to be of the ninth century, a period when, perhaps, the writings of Mesué were already known to initiates. This author was responsible for giving to the world recipes for two varieties, namely, unguentum basilicon magnum and unguentum basilicon minus. The latter of these represents the ingredients reduced to a minimum:—resin, pitch, wax and oil; the former is rather more complex and contains white wax, resin, turpentine, neat's suet, ship pitch, frankincense, myrrh and oil. These preparations were the forerunners of the two ointments finding places in the first edition of the London *Pharmacopœia*. The chief deviations from these ingredients have been the omission of the pitch in many formulas, and in others the fat required may be lard, goat's suet, ram's suet, mutton suet; a few recipes have prescribed palm oil and linseed oil, occasionally saffron, olibanum and mastic have also been used.



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## Editorial Articles

### The Educational Position in Pharmacy

THE past year has been marked by the change in methods of the examinations of the Pharmaceutical Society. The first two examinations of the year were mixed ones; some examinees were under the old and others were under the new conditions. April and July of the current year brought the Qualifying examination for the chemist and druggist under the same guiding principles as those ruling for the pharmaceutical chemist. Our annual Education Number sets out in detail the varying conditions which apply to pharmacy and allied examinations. Year by year these varying conditions have been set out as a help and guide to students, parents and guardians alike; but never was it more important than now for those responsible in training youth to study carefully the changed position in so far as pharmacy is affected. Expressed simply, the change is from oral to written examinations, which on the surface is small indeed, but to those who have known pharmacy and the training of past years, goes deep down to the foundations. Probably in chemistry and pharmacy alone can the change be said to be of no great consequence. Writing answers needs greater exactitude; and when we have said that we have said practically all that is essential in these two important subjects. Physics, botany and pharmacognosy are undoubtedly on a different footing; the practical work introduced into these subjects raises them to a plane which they never before occupied in the two qualifying examinations. It is important that we should look at the results of the examinations so far as they are available in these subjects, and possibly some lesson may be deduced. In the Preliminary Scientific examination in London in April there were 133 out of 307 referred in one subject—botany 98, chemistry 24, and physics 11. In Edinburgh there were 23 referred out of 117—botany 5, chemistry 13, and physics 5. A comparison with London in April 1929 will probably suffice to indicate the trend

of the change: 442 were examined in the Preliminary Scientific; 167 passed, 104 were referred, and 181 failed. The referred in botany were 51, chemistry 63, and physics 18. Chemistry under written conditions showed some improvement; in physics there was no noticeable change; in botany, marked reference back was shown. The practical work in botany evidently proved the undoing of quite a number who might have passed under oral conditions. July is the significant month for the Chemist and Druggist Qualifying examination. This year was the first which has taken place for which a full academic period was compulsory. The figures are not free from confusion, owing to complete official analysis of the results never being published.

		1929	1930
Candidates examined	...	560	471
" failed	...	211	133
" referred	...	133	123
" passed	...	216	215

This is distinctly better. In the analysis of the referred in one subject the figures are interesting.

		1929	1930
Pharmacognosy	...	49	28
Pharmacy	...	103	51
Pharmaceutical chemistry	...	25	52
Forensic pharmacy	...	10	7

The practical part substituted for the oral in pharmacognosy would appear to be an improvement, while in pharmacy the full term of training appears to be significant. The only thing likely to prove disturbing in the Qualifying section is pharmaceutical chemistry, which is such an important part of the training, ranking only second to pharmacy, that the responsible authorities should make it their business to investigate this downfall. The absence of any organic chemistry from the Preliminary Scientific may be a material factor, but without further evidence it is difficult to pass an opinion. It is now nearly four years since it was agreed that some organic chemistry should go back into the chemistry examination, but we have yet to learn that anything has been done on this admitted defect. The introduction of a written examination was bound to produce confusing results, and it may be some years before we can deduce trustworthy conclusions. At the same time, in spite of the heavy toll in two or three subjects, the move seems to be one which makes for betterment; it does not depend so much on the mere physical act of expression in writing one's knowledge as on the systematic training for the two academic periods in the technical schools. This should undoubtedly lead to improvement in the trained pharmacist; but whether it is going to introduce another factor in the form of economic disturbance is a phase for consideration under another heading. The numbers in the main examination of July were only 100 less than in the previous July, which figure on cumulative values may have a profound significance in a few years. The problem of absorption of ex-Service men after the war was one which arose almost as a direct consequence of the clash between examination conditions and economic ones. We deal here with educational problems only. It would appear that some rearrangement of syllabus must take place, and that quickly. The old one was constructed on the principle of an oral examination

with a wealth of detail which in some cases was annoying. The examiners' comments issued from time to time are interesting and peculiar—for example:—

In *Botany*: "The greatest weakness, both in theory and practical papers, was shown in the knowledge and details of anatomy."

In *Chemistry*: "The candidates confine themselves to a too narrow interpretation of the syllabus."

In *Physics*: "Vague and casual notions are far too common in matters upon which the chief object of training is to give precision of ideas."

In *Forensic Pharmacy*: "There was a considerable tendency to confuse 'custom of the trade' with legal requirements and give information not required."

In *Pharmacognosy*: "Candidates include an amount of irrelevant matter."

In *Pharmaceutical Chemistry*: "Candidates had little knowledge of organic chemistry beyond simple facts."

In *Pharmacy*: "Candidates include information not required by the questions."

All of which makes sad reading and indicates that we have an old-fashioned, over-detailed oral syllabus tacked on to systematic training and a new method of examination. It is like putting new wine into old bottles; something is sure to "go." The questions set were typical and fair, and harmonised with the usual style for orderly methods of training. The difficulties which have arisen are merely the excrescences on the adaptation and change-over from oral to written. So far there are no comments of examiners available on the syllabus of the Pharmaceutical Chemist Qualifying examination, but the results are not inspiring. In the April examination in Edinburgh three candidates were examined without a pass. In London the figures were better; 14 were examined and seven passed. In the reconstruction which must follow it will be necessary to do something to save the qualification of pharmaceutical chemist from following the dodo. While the results are not particularly gratifying in giving a higher percentage of passes, it is interesting to compare the contents of the syllabus for the Pharmaceutical Chemist examination and that for the Chemist and Druggist. If we had the experiences of the examiners on both sets of papers and the answers we should no doubt find them very intriguing. That pleasure is denied us. If the pharmaceutical chemist syllabus is right, the chemist and druggist is wrong and vice versa; we cannot have it both ways. There is a still greater need for rationalising the syllabus. Pharmacy in 1920 was a different thing from pharmacy in 1930. In effect, we are more than ten years behind; and the crudities of the formal display of expected knowledge might easily give way to something likely to produce more satisfactory results equal to modern demands in medication. The time is ripe for reconstruction on rational lines; and it is to be hoped the Pharmaceutical Society's Council will not accept everything offered by teaching staffs unless it desires an excess of indigestible material. The time was when pharmacists in business who knew the requirements had a firmer control over the training for pharmacy; but with the growth in the number of schools and technical colleges we find the teaching side has slowly but surely taken a grip, and in this there is a danger that we may lose touch with our economic needs. Finally, no school, however well equipped, can replace practical training in shop or

institution. Each year we emphasise this important side: papers are read at conferences and wise councillors talk *ad libitum* on training apprentices, but the lamentable fact remains that the percentage of those suitably taught grows appreciably less. Those pharmacists with large experience of assistants passing through their hands relate over and over again that the pharmacist of to-day is largely school-trained, and lacks the practical horse-sense characteristic of his predecessors. The intricate details, often exasperating, which commonly arise in shop life compel many employees to seek advice of those who have been through the mill of experience. Over and over again it must be admitted that initiative is conspicuous by its absence; the work turned out lacks that neatness and precision characteristic of old-timers. Handwriting on labels is often nowadays only equalled by the medical variety, uncertain of how to express itself in prescription form. It is for the Council of the Pharmaceutical Society, now that it has secured its curriculum and scholastic training, to bend its mind to the simpler task of outlining a more satisfactory method of laying foundations on which, later, the schools can build a finer superstructure, and one more compatible with ordinary business life. It is not satisfactory for anyone to be required to spend excessive time in practising dispensing medicines, often under cramped conditions, in a school with limited materials, and to acquire a minimum of acquaintance with processes of manufacture. It is affirmed that manufacturing processes on a shop scale have ceased to be, the general sense being they are uneconomic. The statement is not quite true; it no more applies nowadays than it formerly did. To-day we have better facilities for small-scale production than ever, and the only thing which is more difficult is the little trouble in claiming rebate on spirituous preparations. There is a hiatus between taking an apprentice and the nine months in college for the Qualifying examination; it is this period which is the most impressionable, and for which nothing is done officially except to register indentures. A Council could issue a guide to student-apprentices and bridge this period in a helpful manner. Arising from our survey this year, two things stand out clearly: the Council of the Pharmaceutical Society should take a more paternal interest in the development of the apprentice; in quite a number of ways it can do much to help pharmacists, who are not usually unreasonable in this respect, and, we believe, would welcome anything likely to produce better and more efficient graduates who had been taught to build on right lines. Secondly, the Council should undertake the rationalisation of its syllabus for the Qualifying examination and make such changes as are necessary in the Preliminary Scientific. Moreover, it should never forget that the growth of the scholastic side without proper control from the practising pharmacist will only lead more quickly to the undoing of pharmacy. In a higher sense than in the case of most public bodies, the Pharmaceutical Council holds the position of a guide and guardian, not only to pharmacy, but also to pharmacists and pharmacists to be. It is not enough to plan indentured apprenticeship and detailed curricula; efforts should be made to serve the true interests of its future graduates by providing a reasonable routine of training, not excessive, but of sufficient amplitude

to enable them to meet the growing demands in medical and surgical treatment. Pharmacy is not a closed career, but one ever expanding and opening. The Council can do much, it may plan more; but the one thing needful is to ensure that its plans are truly carried out.

### Pharmaceutical Scholarships

THE changes brought into being by the Pharmaceutical Society of Great Britain during the past year make it necessary for the trustees of the pharmaceutical scholarships to reconsider the subjects of their competitive examinations. The situation, we understand, has been debated for the last two or three years; but the complete dividing year was 1930, not 1929, so that the current year could scarcely see the standard set for the future. From Northern Ireland a request reached the trustees of the Fairchild scholarship to include among the conditions one requiring that the Preliminary Scientific examination should be passed. For some years advice on this point had been tendered for the other students too, but we learn that only about half of those entering put the advice to practical use. From information received it appears that the students who passed their Preliminary Scientific early were those who made the running in the scholarships and prizes. We should expect this to be so, as they had shown themselves previously competent in a large part of the competitive examinations. It is clear that a student cannot nowadays begin studies at college for the Qualifying examination within the year in which he intends to pass, be it Chemist and Druggist or Pharmaceutical Chemist, if the Preliminary Scientific has not been negotiated. The regulations require six months for the Preliminary Scientific and nine months' collegiate course for the Chemist and Druggist Qualifying examination, with two academic years for the Pharmaceutical Chemist. It follows that there can no longer be the need for keeping the subjects of chemistry, physics and botany as a part of the scholarship examinations unless it is to provide a further test of knowledge in which competence has already been shown. The Pharmaceutical Society's Council holds the key of the situation, but true to its characteristics it moves slowly. The natural course is to take the science examination early and leave free the period for the true technical training. Some teachers affirm that science should be the test, leaving shop training to be taught in the colleges as a truer basis in pharmaceutical development. This is scarcely sound, as the object of most pharmaceutical scholarships is not to award them on the catch result of a test examination, but to encourage the student during pupilage to lay a firm foundation to enable him to enter for his final examination with a certainty of success. It would seem, then, and we offer it as a suggestion, that the scholarships should in future be based on pharmaceutical chemistry, pharmaco-nosy, pharmacy and business knowledge: by such means, preparation for a successful career in college would be assured. Employers of apprentices would find the opening more encouraging in helping bright students to compete for the scholarships, and we feel sure the results would be better than they are at present. There is a virtue in numbers entering for these competing examinations, as it shows the net is widely spread to stimulate personal effort to achieve something of which to be proud in after-life. Chemists who train apprentices have everything to gain in stimulating study during pupilage, and the results of the scholarships and prizes reflect considerable credit on those who train as well as on those who are trained. Some of the leading pharmacists in our midst are those who were taught to appreciate the offer of scholarships and were encouraged to strive for such an objective.

# EDUCATIONAL INFORMATION



## Pharmacy

GREAT BRITAIN

THE examinations of the Pharmaceutical Society are written and practical, with an addition of oral in pharmacy and pharmacognosy. It is essential that students should consider the regulations carefully, especially the one which requires candidates to bring to the practical examination their notebooks showing the work done during their collegiate course. The past year has demonstrated once again the need to repeat this advice. The examiners can ask questions on these books, and if the manipulation has been unsatisfactory well-kept notebooks showing practical work systematically done may make all the difference.

### EXAMINATION CHANGES

The written portion precedes the practical, and provision is made to hold the examinations at various centres throughout the country in order to prevent any undue travelling. The practical takes place in London and Edinburgh only, and is arranged to follow the written as soon as practicable. It must be admitted that at the present time results are somewhat delayed, but experience will no doubt overcome this difficulty. Students who have passed recognised science examinations equivalent to the Preliminary Scientific are increasing in number; and it is admitted to be a satisfactory way to enter pharmacy wherever facilities are available. For some reason or other the impression prevails that the examinations are harder now than when the oral method was used. It is difficult to combat this feeling, since there are no satisfactory records of oral questions. The examination papers already published appear to be a fair representation of what is set forth in the syllabus. A written examination is admittedly a new method in the Qualifying examinations; and it is quite true that to write answers requires greater accuracy in expression than oral work. The personal equation in written examinations is almost entirely absent, and only a clever imaginative writer can impress the cold, analytic factor called the examiner whom the examinee may never see.

Those who are entering, or contemplating entering, pharmacy through the portals of the London University will find no change from the method in vogue since these examinations were established. Several

### Chemist and Druggist and Pharmaceutical Chemist Qualification

(IN BRIEF)

1. Notification and registration with the Pharmaceutical Society of having passed an approved Preliminary examination.
2. Apprenticeship (indentured), during which provision should be made for attendance in approved technical institutions of chemistry 200, botany 120, physics 120 hours.
3. Preliminary Scientific examination in chemistry, botany and physics.
4. Complete the necessary 4,000 hours' experience in an open shop or approved public institution, during which, or after, spend 300 hours in pharmacy, 120 hours in pharmacognosy, 300 in pharmaceutical chemistry, in an approved school, or 2,000 hours if proceeding for pharmaceutical chemist only, and collegiate hours: pharmacy 620, pharmacognosy 270, chemistry 440, botany 270.
5. At the age of 21, or thereafter, Chemist and Druggist Qualifying examination in pharmacy, pharmaceutical chemistry, pharmacognosy, forensic pharmacy; or pharmaceutical chemist qualification in pharmacy, pharmacognosy, chemistry, botany, and forensic pharmacy.

schools are, and more will be, recognised for the training of students, subject to the institutions conforming with the requirements of the University. The syllabus for the Intermediate examination in science differs from the Preliminary Scientific in pharmacy; an outline is set out under the University degree. Students who can find time and have the inclination to study in a methodical manner will find the examinations provided by the London University one of the best ways to become a pharmaceutical chemist. This presupposes matriculation has been passed before leaving school, which is the only rational method. The results of the examinations during the past year have served to emphasise the subject to which we have repeatedly called attention, namely, systematic training in shop and technical college. Too frequently the routine system of training is slurred over, and the consequences are now made more manifest by the written and practical instead of the *viva-voce* method of testing hitherto prevailing.

### TRAINING IN ROUTINE

We recommend that use should be made in the pharmacy, wherever possible, of the syllabus, or parts of the syllabus, outlined in the following pages. The preparation of galenicals is a rare thing in the shop routine, but the

possibility of making small quantities should not be overlooked by the employer, as it is of vital consequence to the apprentice. No one should take an apprentice unless he is prepared to train in the routine of pharmacy as well as in business methods; to do so is subversive of the legitimate claims of the apprentice. It not only makes a difference in knowledge and experience, but also renders it easier to manipulate appliances in the practical work when an examiner is investigating. Only a few years ago a president of the Pharmaceutical Society, in the course of his survey of a year's work delivered at the Society's annual meeting, made a remark to the effect that it was painful to him, as a practical pharmacist, to notice, as he passed through the examination-hall while candidates were being examined, the inability of some of them to hold their pieces of apparatus in a manner indicating that they were accustomed to their use. The employer should arrange the work to provide a thorough grounding; it means better and more satisfactory service. It is also advisable for students who are eligible to train and enter for the scholarships now available; they provide an incentive to study and lay a good foundation.

## Educational Information

### Preliminary Examinations

The first step on deciding to take up pharmacy is to secure a certificate covering the following subjects:—(a) English; (b) arithmetic, algebra, geometry; (c) a language other than English; (d) another language or one of the following subjects—higher mathematics, experimental mechanics, chemistry, physical geography, physics, botany, biology, geology. These subjects must have been passed at not more than two examinations of the same examining authority. The registrar is empowered to accept certificates covering these subjects, but any deviation may be considered by the Council on its merits. The list of certificates at present accepted is given below. Any student entering pharmacy and desirous of obtaining a degree through the London University must pass its matriculation examination.

#### LIST OF CERTIFICATES ACCEPTED

The following is a list of the principal certificates accepted:—

*Queen's University, Belfast.*—Matriculation Examination.

*Universities of Birmingham, Leeds, Liverpool, Manchester, and Sheffield.*—Joint Matriculation Examination. School Certificate Examination.

*University of Bristol.*—Matriculation Examination. School Certificate Examination.

*University of Cambridge.*—Senior Local Examination, Higher Local Examination. Previous Examination. General Examination.

*College of Preceptors.*—Senior Certificate Examination. Preliminary Examination for pharmaceutical students.

*University of Dublin.*—Any one of four specified examinations.

*University of Durham.*—First School Certificate Examination. Matriculation Examination.

*Universities of Scotland.*—Preliminary Examination in Arts, Medicine, or Science. Final Examination for L.L.A. St. Andrews.

*Intermediate Education Board for Ireland.*—Senior or Middle Grade Examination. Leaving Certificate Examination.

*Educational Institute of Scotland.*—Medical Preliminary Examination. Professional Preliminary Examination.

*National University of Ireland.*—Matriculation Examination.

*University of London.*—Matriculation Examination. Senior School Examination. General School Examination.

*University of Oxford.*—Senior Local Examination. Higher Local Examination. Responsions. Moderations.

*Oxford and Cambridge Schools Examination.*—Higher or School Certificate Examination.

*Scottish Education Department.*—The Intermediate Certificate or Passes in the Higher or Lower Grade of the Leaving Certificate Examination.

*Central Welsh Board.*—Senior Certificate Examination.

*University of Wales.*—Matriculation Examination.

*English Board of Education.*—First School examination certificate to include a "pass with credit" in English, and in one language in Group II or in mathematics, or mechanics, or physics, or chemistry or botany in Group III.

If a student has passed an entrance examination of any other body not referred to in the above list he should submit the certificate to the Registrar of the Pharmaceutical Society, 17 Bloomsbury Square, London, W.C.1. The list of accepted certificates covers the Empire's universities, so that the conditions practically apply only to foreign institutions. It may generally be said that two certificates to cover the whole examination are alone accepted. If the student has not already passed one of the examinations his apprenticeship is of no value until he has acquired the necessary certificate. The favourite examinations for pharmacy students are the certificate of the College

of Preceptors, London, and the professional preliminary examination of the Educational Institute of Scotland. Of these we give particulars below, and refer students for fuller details to the syllabuses of the various bodies.

**THE COLLEGE OF PRECEPTORS**, Bloomsbury Square, London, W.C.1, holds examinations for junior preliminary certificates four times a year at local centres, a list of which is issued two months before each examination. Entry forms, obtainable from the secretary of the College, must be filled up and returned six weeks before the day appointed for the examination. On the form the candidate indicates the subjects in which he desires to be examined, those required for pharmaceutical students being mentioned at the beginning of this section. The fees are best sent with the entry forms, but, if not, must be paid twenty-eight days before the examination begins. Candidates should obtain the regulations for examinations (post free) from the secretary of the College, as the books to be studied in some of the subjects vary from year to year. A complete set of papers at previous examinations can be obtained from the College at 2s. 2d., post free.

**EDUCATIONAL INSTITUTE OF SCOTLAND** (Registrar's Office, 47 Moray Place, Edinburgh) holds a preliminary examination for pharmaceutical students four times a year in Edinburgh, Glasgow, London, Liverpool and Dublin. The fee is £1 1s., and should be sent to the Registrar with the form of application duly filled in. Exemption can be claimed from subjects already passed on a Leaving certificate. The Institute issues a calendar giving the regulations and examination papers, which can be obtained from the Registrar, price 1s.

A certificate of having passed a preliminary examination complying with the conditions having been obtained, it should be sent to the Registrar, the Pharmaceutical Society, 17 Bloomsbury Square, London, W.C.1, accompanied by a fee of two guineas, the student being then registered as an "apprentice or student."

Registration is insufficient in itself; articles of pupilage must be taken up and filed, copies of which can be obtained from the Registrar at the same time. Apprenticeship may be served with a pharmacist, firm, or body corporate, or in an institution recognised by the Council of the Pharmaceutical Society. Apprenticeship in wholesale houses is not yet recognised. The specified number of hours required to be spent in an open shop or approved public institution is 4,000. The student who chooses to follow the course mapped out for a pharmaceutical chemist will be required to serve 2,000 hours in a shop kept open for the retailing, compounding and dispensing of poisons or the dispensary of a hospital or similar institution approved for the purpose, and must also enter into appropriate articles of pupilage. In addition, a recognised course of study must be taken before the Preliminary Scientific examination can be undertaken, and consequently a further sequence in college for the Qualifying examination.

### The Technical Examination

The Board of Examiners sits in London and Edinburgh in January, April, July and October for the purpose of conducting the statutory practical and (in two subjects) oral examinations. Prior to these times the written portion of the examinations must be taken at the appropriate centres. For the Pharmaceutical Chemist examination the Board sits in April and July only. The first part includes botany, chemistry and physics, and is called the Preliminary Scientific, the second pharmacognosy, pharmacy, pharmaceutical chemistry, dispensing and forensic pharmacy. Its specific name is the Chemist and Druggist Qualifying examination. For the purpose of simplification the Pharmaceutical Chemist qualification is dealt with separately under that heading.

The Preliminary Scientific can be taken between the ages of eighteen and twenty-one, the Qualifying examination only after the age of twenty-one has been reached.

## Educational Information

The fee payable for the Preliminary Scientific is six guineas, and the conditions are: The candidate must have spent the requisite number of hours in botany, chemistry and physics in an institution approved for the purpose by the Pharmaceutical Society's Council. If a candidate is referred in one subject only he may re-enter for that one only. Two "refers" are equivalent to a failure in all. The re-examination fee is £4 4s. A candidate who has failed to attend an examination at the appointed time must pay an additional fee of £2 2s. unless prior to the examination a medical certificate of unfitness is lodged with the Secretary of the Pharmaceutical Society.

Having passed each subject in the Preliminary Scientific and completed 4,000 hours, not less than two years, in an open shop or approved public institution and reached the age of twenty-one, the candidate should send a birth certificate, together with another fee of £12 12s., and the necessary declaration of having completed the conditions, on the prescribed form, to the Registrar. The examination is conducted on similar lines, and success in all subjects entitles the candidate to be registered as a chemist and druggist by examination.

All candidates have the choice of being examined in the practical portion of the examination in London or Edinburgh, and they are required to state the venue desired when filling up the entrance form.

### The Examination Syllabuses

The official syllabus of the Pharmaceutical Society for the Preliminary Scientific is set out, though examinations in lieu of this may be taken in approved institutions.

#### Preliminary Scientific

##### BOTANY

Morphology, including anatomy. The external form of plants: Thallus, root, stem, leaf. The distinguishing features and commoner modifications of these structures. Buds and veination. Principles of branching and different kinds of branch systems. Phyllotaxis and branching. Inflorescence, flower, fruit. Pollination. Self and cross fertilisation. The formation of the seed. Germination. A general acquaintance with the elements of plant anatomy; the vegetable cell (tissues, e.g., meristematic, epidermal, fundamental and vascular). The characteristic anatomical features of roots, stems and leaves of flowering plants and ferns. The method of increase in thickness of stems and roots, and the characters of primary and secondary tissues.

The elements of physiology. The nature and source of the food of plants, and the manner in which the raw materials are elaborated. Chlorophyll, its manner of occurrence in the plant; its functions and the conditions under which it discharges them. Reserve materials, their nature, mode of deposition, and the manner in which they are utilised by the plant. The manner in which plants grow, and the conditions necessary for the growth of a plant. The manner in which plants respond to external stimuli—e.g., light, gravity, etc. Sexual and asexual reproduction.

The written and practical examination in botany now in force has served to show the weakness in preparation to which we have repeatedly called attention. The examiners themselves made the following criticisms on the answering of the questions at the April examination. "The greatest weakness, both in theory and practical papers, was shown in the knowledge of the details of anatomy. The source of the weakness was found in the practical note-books handed in by the candidates, where the anatomical drawings in a large number of cases displayed no attempt to depict the essential features distinguishing the various tissues." Nature at first hand is still essential, and a good deal of interest can be created with a pocket lens and a handy guide like "Pharmaceutical Botany" (C. & D. Offices). There are ten questions set in the written paper, but only five required to be answered in the three hours allowed. The standard required means that personal contact with material is necessary. Also, every physiological experiment that can be made by the student is going to stand him in good stead at

the testing time. The "refers" in botany since the introduction of the present system have increased by nearly 30 per cent. Whether this is due to faulty teaching or poor studentship it is difficult to say. It is sufficient for our purposes here to indicate a method of improvement. Oral examinations help a candidate who is ready of speech; but when it comes to stating in the written word what his observations are it means that the student must be exact in expression. Consequently, the best practice is to learn to say in writing what the observations are on plants, their structure, tissues and the functions of living material.

The microscope is a necessity, and one must put away from the mind the intolerable weakness of seeing what is not there. The examiner sees and checks the practical work, and any student who tries to reproduce from memory instead of observation is soon found out. Section-cutting should be persistently practised, as quite a number of "refers" occur owing to the attempt in the examination to mount ridiculous sections. No one can observe anything reasonable in a section which is too thick to transmit the light used for illumination. The keynote is assiduous practice. The student should bear in mind that this new method of examination requires him to study the subject, not with the object of forgetting when the examination is over, but to acquire and show that observation, manipulation and the gift of expression have been cultivated, which will prove to be a great asset in after-life.

**Classification.**—A general knowledge of the chief divisions of the vegetable kingdom, including a special study of the plants and families named.

##### THALLOPHYTA.

*Alga* :—*Spirogyra*, *fucus*.

*Fungi* :—*Agaricus*, *saccharomyces*, *bacillus*.

##### BRYOPHYTA.

*Funaria* and *Pellia*.

##### PTERIDOPHYTA.

*Dryopteris felix-mas*.

##### SPERMOPHYTA.

*Gymnosperma* :—*Pinus*, with only the general external features of *Cycas* and *Taxus*.

##### Angiosperma.

*Dicotyledones*.—*Ranunculace*, *Cruciferæ*, *Leguminosæ*, *Umbelliferae*, *Compositæ*, *Scrophulariacæ*, *Labiatae*, *Solanace*, *Salicace*.

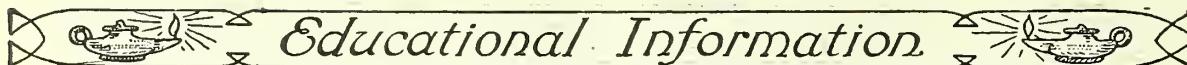
*Monocotyledones* :—*Graminace*, *Liliace*.

**Practical Examination.**—To dissect, examine and describe any plants or parts of plants, and to refer to their systematic position any plants belonging to the above-named families. To prepare for the microscope and describe sections illustrating the anatomy mentioned above, and to bring to the examination his original laboratory note-books.

### CHEMISTRY

An elementary knowledge is required of the following subjects:—

(a) The chief characteristics of chemical action, the direction of elements and compounds; the laws of chemical combination by weight and volume; the hypothesis of Avogadro; atomic weight and molecular weight; chemical formulas and nomenclature; valency; the distinction between metals and non-metals, and the periodic classification of the elements. (b) The general characters of the non-metals; the chief methods of preparation and the typical reactions of the following non-metallic elements and compounds: Hydrogen, oxygen, ozone, water, hydrogen peroxide, chlorine, bromine and iodine, and their compounds with hydrogen and oxygen; fluorine, hydrofluoric acid, nitrogen, ammonia and ammonium compounds, the oxides of nitrogen, nitrous acid, nitric acid; sulphur, hydrogen sulphide, sulphurous and sulphuric anhydrides and acids, thiosulphuric acid; phosphorus, the oxides and oxy-acids of phosphorus; the chlorides of phosphorus, silicon, silica, boron, boric acid. (c) The general characters and classification of the metals, and the general methods of forming oxides and salts; the sources, the usual method of extracting and the chief properties of the under-mentioned metals, also the modes of preparation, properties, adulterations and contaminations of their principal compounds: Potassium,



## Educational Information

sodium, lithium, barium, strontium, calcium, magnesium, zinc, aluminium, iron, chromium, manganese, nickel, cobalt, arsenic, antimony, tin, copper, bismuth, lead, silver, mercury, gold and platinum. (d) Carbon, its oxides, methane, ethylene and acetylene. The candidate will also be expected to possess a general knowledge of the methods of estimating carbon, hydrogen, oxygen, and nitrogen in organic compounds, and of obtaining molecular formulae. The candidate is expected to solve simple problems relating to the weight and volume under different conditions of temperature and pressure of elements and compounds concerned in chemical reactions.

**Practical Examination.**—To exhibit a practical acquaintance with the methods of preparing the more important inorganic substances. To identify by chemical tests the more important non-metallic elements and their compounds, as well as the metals and salts indicated in the foregoing list. To analyse a mixture containing not more than two basic and two inorganic acid radicles. To understand the principles of volumetric analysis, and to prepare and standardise, and use volumetric solutions of inorganic acids, salts, alkalies, potassium permanganate, and silver nitrate. The candidate will be required to bring to the practical examination his original laboratory note-books for inspection.

Chemistry is essentially a practical subject; it simply cannot be mentally absorbed from lectures or textbooks. The lectures are pointers to indicate the way, and the demonstrator is the person to see that the narrow way is kept, since it is so easy to go astray unless the rules applicable are observed. Chemistry is an exact science, and requires exactitude in its treatment. The examination consists of a written paper of eight questions of which only six must be answered, and it is safe to say those six questions require clear thinking to answer. It is good practice to keep a book in which answers to pointed questions have been written up from memory and checked later. Such systematic training in the method of expression takes a student well on the road to success.

Finally, students should from their early studies conscientiously keep note-books of the work done at college. Nothing is more destructive of a candidate's chance than carelessly written or copied matter in note-books; the student should write up what has been done or found, and be sure that each section of work is initialed, stamped and corrected where necessary at the college as soon as completed. Where a candidate is weak in the practical paper it is a great help to him if the examiner can see for himself that systematic and careful work has been done. The rejections in chemistry are higher than they were under former conditions, but the work of those who were successful was better than under the previous methods. The great expectations of improvement in this subject may yet be realised, but at the present moment greater assiduity in the study is required. All note-books must be available for the examiner at the practical examinations.

### PHYSICS

Candidates are required to possess an elementary knowledge of:—

(a) Units; mass; weight; the balance, force, energy and work; levers and pulleys; gravity; centre of gravity; distinctions between solids, liquids and gases; transmission of pressure in liquids; water-pumps; the syphon; Boyle's law; atmospheric pressure; barometers; air-pumps; diffusion; dialysis; specific gravity; vapour density.

(b) Temperature; thermometry; changes in volume of solids, liquids and gases with alterations of temperature; quantity of heat; specific heat; change of state; latent heat; boiling and freezing points; vapour pressure.

(c) Propagation of light; laws of reflection and refraction; photometry; simple properties of mirrors, lenses and prisms; the eye as an optical instrument; the principles of the correction of errors of vision by means of lenses.

(d) Simple properties of magnets; simple phenomena of static electricity; electric currents; primary and secondary cells; the magnetic chemical and heating effects of currents; Ohm's law.

**Practical Examination.**—To perform simple experiments, solve simple problems, and to show a knowledge of the

construction and use of physical apparatus, so as to illustrate the subjects detailed above. The candidates' original laboratory note-books will be required.

The examination in physics consists of a written paper of three hours, covering a choice of seven questions from ten set, and two hours' practical manipulation and display of technical knowledge to the satisfaction of the examiners. It was thought when practical physics was introduced that there would be found considerable lack of manipulative skill. At first this was so, but at the present moment greater progress towards efficiency has been shown in physics than in the other two science subjects. It is an interesting and practical subject, not too advanced, to which the student's mind can easily turn almost as a recreation.

### EXTERNAL EXAMINATIONS IN PHARMACY

Apart from the examinations of the Pharmaceutical Society's examiners as set out in the above syllabus, there is a proviso for the acceptance of certificates in lieu of the Preliminary Scientific. At present the specification is vague, since no schools are approved and certificates are considered on their merits. They are: (1) The Final or Intermediate examination of any University in England and Wales, or equivalent examination in a Scottish University approved by the Pharmaceutical Council, (2) The Higher School Certificate examination conducted by an examining body approved by the Board of Education for subjects taken as principal subjects. The fee on acceptance of these certificates is £2 2s., and subsequently the same regulations apply as to the Pharmaceutical Society's examinations.

### Qualifying Examinations

#### PHARMACOGNOSY

The details of the syllabus as follows:—

To recognise specimens of crude drugs mentioned in the British Pharmacopœia or in the annexed list; to be acquainted with their botanical, zoological and geographical sources, commercial varieties, the natural orders to which they belong, and the mode of collection and preparation for the market; to indicate the morphological nature of such as are organised, and the mode of formation of such as are unorganised, to describe them correctly, and to point out diagnostic characters either chemical or physical, the latter so far as they can be ascertained by the use of a lens. To name the chief active constituents of official drugs, to know the proportion present in good samples of the more important of them, and to possess a practical knowledge of any pharmacopœial tests or processes of assay applied to crude drugs or their official products.

Agar-agar	Elaterium	Pilocarpi microphylli Folia
Alkannea Radix	Eucalypti Folia	Pimenta
Althæa Radix	Euphorbium	Piper longum
Amomi Meleguetæ Semina	Fœni-græci Semina	Piper nigrum
Arcea Semina	Fucus vesiculosus	Pix Burgundica
Arnicae Rhizoma	Gálbanum	Quercus Cortex
Cacao Semina	Guarana	Rhamni Frangulae Cortex
Calendulae Flores	Guttapercha	Sabinae Cumicina
Cambogia	Hellebori nigri Rhizoma	Sandaraca
Canellæ Cortex	Hyoscyami Semina	Sanguinariae Rhizoma
Cantharis	Iguatii Semina	Sanguis Draconis
Cassiae Cortex	Inule Radix	Sarsæ Radix
Cetraria Islandica	Iridis Rhizoma	Scammonium
Chondrus crispus	Lacea	Sinapis Albæ Semina
Chrysanthemi cinerariaefoliæ Flores	Lauri Fructus	Sinapis Nigræ Semina
Cimicifugæ Rhizoma	Lupulus	Stramonii Semina
Cocæ Folia	Lycopodium	Sumbul Radix
Coccus Indicus	Manna	Toneo Semina
Conii Fructus	Mastiche	Ulmi fulvæ Cortex
Convallariae Flores	Moschus	Vanillæ Fructus
Crocus	Mylabris	Veratri albi Rhizema
Cumini Fructus	Olibanum	
Cydoniæ Semina	Papaveris Capsulae	
	Physostigmatis Semina	

The candidate is also required to recognise any of the plants in the following list:—

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Aconitum Napellus	Digitalis purpurea	Pinus sylvestris
Althaea officinalis	Dryopteris Filix-mas	Prunus Laurocerasus
Anthemis nobilis	Foeniculum capillaceum	Quercus Robur
Atropa Belladonna	Hordeum distichon	Rosa canina
Avena sativa	Hyoscyamus niger	Rosmarinus officinalis
Brassica alba	Juniperus communis	Ruta graveolens
Brassica sinapioides	Juniperus Sabina	Salix alba
Bryonia dioica	Lavandula vera	Sambucus nigra
Cochlearia armoracia	Matricaria Chamomilla	Solanum Dulcamara
Colchicum autumnale	Mentha piperita	Taraxacum officinale
Conium maculatum	Mentha Pulegium	Taxus baccata
Cytisus Scoparius	Mentha viridis	Triticum vulgare
Daphne Laureola	Gentiana crocata	Ulmus campestris
Daphne Mezereum	Papaver Rhoeas	Valeriana officinalis
Datura Stramonium	Papaver somniferum	

Students have not many opportunities of handling crude drugs before college begins, but every chance should be seized for a first-hand acquaintance. The old method of examination is completely changed. The written paper allows three hours for six questions out of eight. The range covers writing out the characteristics of a specified drug and frequently to give sketches to illustrate the answer. Methods of collection and storing and a knowledge of constituents are required. Briefly, the old oral which allowed a succession of interrogations is condensed into six questions. It follows from this that memory plays a bigger part than before, and it must be a visual memory. To see an actual specimen and handle it was to set up a series of related facts suitable for recounting to the examiner. Now the image must be within the mind, and pharmacognosy makes greater call upon mental processes than before. In the practical work recognition of half a dozen or more specimens must be made and entered on the sheets provided, together with such information as is requested. Simple tests for powdered drugs and the use of the microscope for the identification of well-defined powders are required. The rejections have so far been higher; but as the practical teaching of this subject becomes better stabilised, candidates will easily be able to fulfil the conditions expected.

### PHARMACY

I *Pharmacy (General)*—Operations requiring the use of heat. Evaporation, with particular reference to the preparation of extracts; special characters and modes of preparing the various classes of extracts; influence of surface, temperature and pressure upon the rate of evaporation; water, steam, and sand baths; distillation, ordinary, fractional, steam, and destructive, distinctive characters and objects of each; official preparation illustrating the various kinds of distillation, apparatus employed, the retort and receiver still and worm, Liebig's condenser, principles on which they are constructed and used. The principles of sterilisation. Sublimation; its objects and applications in pharmacy; official products of sublimation, calcination, and fusion. Desiccation; temperature best suited for drying particular drugs, loss in drying vegetable drugs, forms of drying ovens, principles on which they are constructed and used. Disintegration of solid substances; cutting, bruising, and pulverisation, apparatus employed, principles indicating which is to be adopted in particular instances; methods for controlling the degree of comminution, sieves and sifting, trituration, levigation, elutriation, granulation, including methods for producing certain chemicals as fine powders, small crystals, scales, etc. Filtration objects and methods, filtering media, means of expediting filtration; dialysis, its application in pharmacy, construction and use of the dialyser. Expression; methods of obtaining the juices from plants; recovery of the residual liquids from mixture mares, etc., screw, hydraulic and other presses. Solution: its nature, solvent power of various menstrua, influences of (a) temperature; (b) state of division of the substance to be dissolved; (c) time; (d) position of the substance in the menstruum; lixiviation, infusion, digestion, and decoction; maceration, percolation, and displacement, principles on which the successful performance of these processes depends; form and materials for percolators and other vessels employed. The principles involved in the dispensing of medicines, particularly with reference to the

best excipients and methods for forming pill masses, the preparation and nature of emulsions, the most suitable emulsifying agents and the best means of suspending insoluble substances in liquids. The candidate is also required to show a general knowledge of the processes, and understand the principles of the processes by which official galenical preparations are made, and the principles on which they are based.

The candidate will be required to read without abbreviation autograph Latin prescriptions, translate them into English, understand the grammatical construction, and render a literal as well as an appropriate translation of the directions for use; to detect errors, discover unusual doses, and have a general knowledge of posology; to calculate percentages and other quantities occurring in prescriptions.

II *Practical Pharmacy and Dispensing*.—To perform such operations of the British Pharmacopœia, or such parts of them as may be practicable, involved in the processes for preparing collodions, confections, decoctions, dilute acids, extracts (solid and liquid), glycerins, infusions, juices, liniiments, lotions, mixtures, ointments, pill masses, plasters, powders (simple and compound), scale preparations, solutions, spirits, suppositories, syrups, tinctures, vinegars, waters and wines.

To compound and dispense medicines as prescribed; to write the directions in concise language and in a neat and distinct handwriting; to finish and properly direct each package, and to bring original laboratory note-books.

The examination in pharmacy consists of a three-hours' written paper divided into two parts. The first part consists of four questions, all of which must be attempted; two out of part two, in which four further questions are set out, must also be answered. Analysis of the papers set shows that a student must be able to state how particular galenicals are prepared, and to contrast methods, giving where possible the reasons for variations and simple calculations in adjustments of strengths, to show a knowledge accompanied by an annotated sketch of some piece of apparatus and a knowledge of the uses of extractives. The student needs to show a more exact knowledge than hitherto. In an oral examination a student could sometimes "get away" with shaky knowledge; but that is not so easy with a written paper, which must be fairly exact. In the practical there is no change, unless we regard printed prescriptions instead of script as one. The dispensing is better standardised than formerly, but that only means that better manipulative skill is expected. The oral is only of fifteen minutes' duration, and deals with reading prescriptions in script form. Altogether, the student in pharmacy who has worked through his collegiate course conscientiously should seldom fail to satisfy the examiners, and yet up to the present moment the rejections have advanced. The fault appears to be in early training and shirking of the advice frequently given to make systematically the galenical preparations of the British Pharmacopœia.

### PHARMACEUTICAL CHEMISTRY

To have a general knowledge of the preparation, principal properties, and reactions of the following: Hydrocyanic acid, cyanides, ferrocyanides, ferricyanides, oxalic acid, methyl and ethyl alcohols, acetone, formic and acetic aldehydes and acids, chloral hydrate, chloroform, iodoform, ether, ethyl acetate, acetamide, aloin, oleic acids, soaps, glycerin, lactic acid, citric and tartaric acids, sucrose, dextrose, lactose, starch, salicin, urea, simple urethanes, and ureides. Benzene, phenol, picric acid, phenolphthalein, nitro-benzene, aniline, acetanilide, benzoic acid, salicylic acid, acetylsalicylic acid, salol, gallic acid, tannic acid.

To have a general knowledge of the adulterations and contaminations which may occur in the elements and inorganic compounds included in the British Pharmacopœia, and such of the organic compounds mentioned above as are included in the British Pharmacopœia, and the methods by which the purity of these substances is determined.

### Practical Examination

To identify by chemical tests the following organic compounds: Cyanides, oxalates, acetates, tartrates, citrates, benzoates, salicylates, starch, sucrose, dextrose, lactose, salicin, cocaine, quinine, morphine, strychnine, and their salts; methyl alcohol, ethyl alcohol, acetone, formaldehyde, glycerin, chloroform, phenol. To detect and identify the

# Educational Information

adulterations and contaminations which may occur in the elements and inorganic compounds included in the British Pharmacopœia and in such of the organic compounds mentioned in the list of substances for identification as are included in the British Pharmacopœia. To perform those volumetric determinations and those requiring the use of a nitrometer which are described in the British Pharmacopœia. To have a practical acquaintance with the methods of preparing the more important inorganic substances, and also the following organic compounds: Ether, chloroform, ethyl, nitrite, hydrocyanic acid, acetanilide and nitrobenzene, so that he may be able to explain to the examiner the operations involved in their preparations, and, if called upon, to perform the operations or certain stages of them himself.

To determine quantitatively the total alkaloids in cinchona bark and its official preparations, in the liquid extract of belladonna and its preparations, and in the liquid extract of ipecacuanha; also the strychnine in the extract, liquid extract, and tincture of nux vomica; the morphine in opium and its extract, liquid extract and tincture, any of the above alkaloids in any other preparations by methods involving principles similar to the above, and the resin in tincture of jalap.

Candidates may consult the British Pharmacopœia and the British Pharmaceutical Codex, but the necessary information is now given on the paper set, so that it resolves itself into a question of interpretation in practical skill of the methods set out.

The candidate is required to bring to the practical examination his original laboratory note-books for inspection.

Pharmaceutical chemistry as a written paper is of three hours' duration, in two parts of four questions; not more than three out of each part but only five in all must be attempted. The examiners affirm that candidates show by their answers they do not give sufficient attention to pharmacopœial chemistry and confine themselves to little beyond simple elementary facts. The rejections are very high, and this is difficult to explain. The papers are informative ones and comparatively straightforward. It would appear that too little is done practically, and what is done conforms to a type of titration which is fairly common. In the organic portion there seems something deficient in training or slackness in absorption.

#### FORENSIC PHARMACY

The Candidate will be required to possess such information concerning the following enactments as is contained in the pamphlet "Forensic Pharmacy," published by the Pharmaceutical Press:—The Pharmacy Acts, the Arsenic Act, the National Health Insurance Act, the Dangerous Drugs Acts and Regulations, Apothecaries Act, Medicine-Stamp Act, Shops Act (sections dealing with the sale of medicines), Weights and Measures Act, Protection of Animals Act, Sale of Food and Drugs Acts, Registration of Business Names Acts, Venereal Disease Act, and the relevant sections of the Acts relating to the use of stills, the sale of spirits (including methylated spirit, medicated wines), storage and sale of explosives or inflammable substances, sale of abortifacients.

The examination in forensic pharmacy is a misnomer—it really means an examination in law as affecting pharmacy and shopkeeping, since quite a number of the laws mentioned above apply generally, and not to pharmacy in particular. The examination is a written one, which is quite an advantage for all concerned. The "pamphlet" published by the Pharmaceutical Press is the book which gives the extent of the laws for the examination. The book, being an official one, is limited to a bare exposition, and this is the only case where a book—nominally a pamphlet—is mentioned. The poisons law is material, together with the Dangerous Drugs Acts and Regulations. For an exposition of these something more is needed than the official pamphlet. The C. & D. Poisons Cards, Nos. 1 and 2,

summarise the Acts, together with an extended list of several thousand poisons. The Dangerous Drugs Card, No. 4, is the best epitome of the Acts and Regulations, giving the practical points. In addition, the whole of the laws specified in the syllabus as affecting pharmacy are analysed and special points given in the C. & D. Diary, 1930. It may be pointed out that these cards and the Diary are devised on the basis of meeting the needs of the practical pharmacist and the examiner. No candidate need fear a written examination of three hours if he has digested the forensic exposition in the C. & D. Diary, 1929. Three hours for six questions on this subject as set out in recent papers seems almost farcical, as a well-trained candidate who has applied the hints set out above, could answer the questions in half the time.

#### Summary of Examination Fees

Apart from the fee for collegiate courses, the following are payable by pharmacy students:—

Registration as student, £2 2s.  
Preliminary Scientific, £6 6s.

Re-examination in case of failure, £4 4s.; a person who has failed to attend, £2 2s.

Chemist and Druggist Qualifying examination, £12 12s.

Re-examination in case of failure, £4 4s.; a person who has failed to attend, £3 3s.

Those about to enter the calling should be informed as to the conditions for a chemist and druggist qualification, and under competent advice, parents and guardians should weigh carefully the advantages and disadvantages of the method of procedure. The conditions of the chemist and druggist qualification are dealt with under the appropriate heading. Two ways are possible for the pharmaceutical chemist qualification, one through the examinations of the Pharmaceutical Society and the other through the University of London or any other University which may later be recognised. The University training and examinations include both internal and external students.

In the case of the pharmaceutical chemist, there is no change in the times of the examination. The entrance

#### Syllabus for Chemist & Druggist Examinations

(IN BRIEF)

##### Preliminary Scientific

###### BOTANY

Morphology, including Anatomical Structure; Physiology, Reproduction; Physical Effects of Light and Gravity, classification, dissection and description of plants within specified classes.

###### CHEMISTRY

Chemical Principles; Non-Metals and their Compounds; Characters and Classification of Metals; Formation of Oxides and Salts; Carbon and its Oxides; Knowledge of Estimation of Carbon; Hydrogen, Nitrogen; Simple Chemical Problems.

###### PRACTICAL CHEMISTRY

Analysis of a salt containing not more than two Metals and two Acid Radicals; Identification and Knowledge of specified metals and salts; Principles of Volumetric Analysis and standardisation of solutious.

###### PHYSICS

Conservation of Energy; Gravitation, Balance, Pressures; Diffusion, Vapour Densities; Thermometer, Barometer; Specific Gravity, Mass, Force, Energy, Work; Forms of Matter; Temperature and Pressures; Light: Reflection and Refraction; Correction of Vision; Magnets; Static and Current Electricity; Primary and Secondary Cells.

##### Qualifying

###### PHARMACOGNOSY

Pharmacopœial Drugs and others specified; Recognition, Classification; Sources, Structure, Chemical and Physical Characteristics; Active Principles.

###### PHARMACY

Laboratory Methods and Appliances; Preparation and Production of Galenicals; Knowledge of Assay; Sterilisation; Dispensing and Prescription Reading and Translation.

###### PHARMACEUTICAL CHEMISTRY

Preparation and properties of specified medicinal organic compounds. Pharmacopœial test for impurities, assay, and volumetric determinations.

###### FORENSIC PHARMACY

Knowledge of Schedules, Conditions and Precautions of Sale of Poisous, and Laws Affecting the Keeping of Open Shop.

The questions set in the papers are informative ones and comparatively straightforward. It would appear that too little is done practically, and what is done conforms to a type of titration which is fairly common. In the organic portion there seems something deficient in training or slackness in absorption.

###### FORENSIC PHARMACY

The Candidate will be required to possess such information concerning the following enactments as is contained in the pamphlet "Forensic Pharmacy," published by the Pharmaceutical Press:—The Pharmacy Acts, the Arsenic Act, the National Health Insurance Act, the Dangerous Drugs Acts and Regulations, Apothecaries Act, Medicine-Stamp Act, Shops Act (sections dealing with the sale of medicines), Weights and Measures Act, Protection of Animals Act, Sale of Food and Drugs Acts, Registration of Business Names Acts, Venereal Disease Act, and the relevant sections of the Acts relating to the use of stills, the sale of spirits (including methylated spirit, medicated wines), storage and sale of explosives or inflammable substances, sale of abortifacients.

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examinations are the same for those of the chemist and druggist qualification, and the same applies to the Preliminary Scientific. At this point a decision must be made for the passing from that of a chemist and druggist to a pharmaceutical chemist qualification if it comes as an afterthought. A candidate must be twenty-one years of age and supply the usual proofs. The hours in an open shop or recognised institution are 2,000. The hours for studying at college are 1,600, made up by 620 in pharmacy, 270 in pharmacognosy, 440 in chemistry, and 270 in botany. The examination is in botany, chemistry, pharmacognosy, pharmacy (including the translation and dispensing of Latin prescriptions) and forensic pharmacy. The conditions of failure are the same as in the other examination, with this addition: If the standard required for the pharmaceutical chemist qualification is not reached, but the work done, in the opinion of the board of examiners, reaches the chemist and druggist standard, a certificate for that qualification may be awarded. A chemist and druggist who desires to go further will be entitled to enter for the pharmaceutical chemist qualification on an additional curriculum of 1,600 hours, including 240 in pharmacy, 110 in pharmacognosy, 420 in chemistry, and 290 in botany; but he will be excused the examination relating to translation and dispensing of prescriptions and forensic pharmacy. Articles of pupilage apply equally to students for the pharmaceutical qualification, the hours being 2,000. The syllabus is as follows:—

## APPENDIX 5

### SYLLABUS FOR THE PHARMACEUTICAL CHEMIST QUALIFYING EXAMINATION

*Although the study of French and German is not included in the systematic course of instruction required by Regulation 25 (b) of the Regulations for the Pharmaceutical Chemist Qualifying Examination, questions will be set involving (1) the translation of passages in French and in German, and (2) answers with regard to the subject matter thereof.\**

#### BOTANY

censis of two Papers and a Practical Examination. (1) The principles of morphology: the special morphology of medicinal plants. (2) Anatomy and histology: the systematic anatomy of medicinal plants; microchemistry. (3) The distinguishing characters of the chief taxonomic divisions of plants, including the following groups and families, particular attention being directed to such plants as are of pharmacognostical importance:—

#### THALLOPHYTA.

*Alga:* Cyanophyceæ, Chlorophyceæ, Diatomaceæ, Phæophyceæ, Rhodophyceæ.

*Fungi:* Phycomycetes, Ascomycetes, Basidiomycetes, Lichenes, Bacteria.

#### PTERIDOPHYTA.

*Lycopodiina:*—Lycopodiaceæ.

*Filicina:*—Polypodiaceæ.

*Equisetinae.*

#### SPERMAPHYTA.

*Gymnospermæ:*—Coniferæ.

*Angiospermæ.*

*Monocotyledones:*—Graminaceæ, Araceæ, Liliaceæ, Amaryllidaceæ, Iridaceæ.

*Dicotyledons:*—Salicaceæ, Fagaceæ, Ulmaceæ, Cannabaceæ (= Cannaboidæ), Polygonaceæ, Ranunculaceæ, Papaveraceæ, Cruciferae, Rosaceæ, Leguminosæ, Rutaceæ, Euphorbiaceæ, Malvaceæ, Myrtaceæ, Umbelliferæ, Ericaceæ, Gentianaceæ, Boraginaceæ, Labiateæ, Solanaceæ, Scrophulariaceæ, Rubiaceæ, Caprifoliaceæ, Valerianaceæ, Campanulaceæ, Compositeæ.

(4) The general Principles of Plant Physiology with special reference to the processes of metabolism.

#### Practical Examination

To (1) examine, describe, dissect and make preparations, both macroscopic and microscopic, of plants or parts of

\* Candidates are recommended to read some books or papers in French and in German on the subjects of the examination. In all subjects the candidate is required to bring the original laboratory books signed by the teacher, which may show any original work done.

plants included in the foregoing schedule; (2) refer to their appropriate systematic position plants or parts of plants comprised in the foregoing schedule; (3) identify British angiosperms by means of a flora; show a practical knowledge of the methods and apparatus used for demonstrating the main facts of the physiology of plants.

#### CHEMISTRY

consists of two Papers and a Practical Examination.

To have a general acquaintance with the five main divisions of the subject, viz.:—

- (1) General Theoretical Chemistry;
- (2) Inorganic Chemistry;
- (3) Organic Chemistry;
- (4) Physical Chemistry;
- (5) History of Chemistry since the time of Boyle.

The candidate will be allowed to bring into the examination laboratory any one book on quantitative analysis provided that it does not contain any reference to qualitative analysis.

#### PHARMACOGNOSY

consists of two Papers and a Practical Examination.

To possess a general knowledge of the crude drugs of vegetable or animal origin described in the British Pharmacopœia; of their more important constituents and of their chief commercial varieties; to be acquainted with the methods commonly adopted in the microscopic examination of vegetable drugs, including the isolation and identification of the various tissues and cells; measurement; microchemical tests; and the means of examining fabrics used for surgical dressings.

#### Practical Examination

The candidate will be required to identify any crude drug of vegetable or animal origin described in the British Pharmacopœia; to demonstrate diagnostic characters ascertainable by means of a lens, or by dissection; to make, sketch and describe microscopic preparations of any organised vegetable drug contained in the British Pharmacopœia, either in the entire or powdered state; to point out distinctive histological characters in the same; to identify in the form of powder such as are commonly used in that condition, and to ascertain their freedom from admixture by comparison with authentic material.

#### PHARMACY

To show a general knowledge of the following, and a practical acquaintance with pharmaceutical apparatus and operations:—

Solution and the conditions affecting it; methods of determining solubility, the preparation of isotonic, colloidal and other solutions. Filtration, colation, clarification and decolorisation. Preparations of crystals and granules. Dialysis. Apparatus used and principles involved in the drying, disintegrating, powdering and sifting of crude drugs and in the processes of evaporation, distillation, sublimation, calcination and fusion; the application of these processes in pharmacy. Expression; recovery of residual liquids from tincture marcs. The principles of sterilisation; sterilisation of apparatus and materials. Preparation of aseptic and antiseptic dressings; determination of the proportion of wool and cotton in dressings made from the mixed fibres. Enzymes and their action in the manufacture and preservation of pharmaceutical preparations. An elementary knowledge of vaccines and serums and the methods by which they are prepared and standardised.

To possess a general knowledge of the chemistry of the organic and inorganic substances or compounds of the British Pharmacopœia, and also a general knowledge of the manufacture of the preparations of the British Pharmacopœia.

#### Practical Examination

To conduct the operations by which the preparations of the British Pharmacopœia are made; to dispense prescriptions, and to have a general knowledge of posology.

Qualitative and quantitative analysis with special reference to the tests and assay processes of the British Pharmacopœia by which the purity of chemical drugs is ascertained and by which the principal constituents of vegetable drugs and their preparations are determined.

#### FORENSIC PHARMACY

This is the same as set forth in the Chemist and Druggist qualifications.

# Educational Information

## University Examinations in Pharmacy

### LONDON

In order to be admitted to a degree of B.Pharm., London, either as an internal or external student, candidates must (1) matriculate in one of the ways provided by the regulations, (2) pass the Intermediate examination in science, (3) have followed an approved course of study under recognised teachers of the University and in approved institutions. In order to be entered on the Pharmaceutical Register they must, in addition, have been apprenticed for 2,000 hours under accepted articles of pupilage and have passed the examination of the Society in forensic pharmacy. The fee for each examination is £6 6s. Application for copies of the regulations should be made to the Academic Registrar, University of London, South Kensington, S.W.7, or for an external student to the External Registrar.

The layout of the hours in the course of study for B.Ph. is the same as the Pharmaceutical Chemist Final, but in the Intermediate the examination differs, and the layout varies too.

The Intermediate examination of the University for external and internal students is set in two papers and a "practical" in each subject. Chemistry includes methods which lead to the discovery of the composition of common natural materials; determination of molecular weights, chemical laws and processes. In the practical: Quantitative, gravimetric, and volumetric work. Notebooks must be available for inspection by the examiners.

In physics: The properties of solids, liquids and gases; principles of heat, sound and light, and the properties of magnetism and electricity.

Botany: Characteristics of angiosperms, gymnosperms, and specified natural orders. Pteridophyta, bryophyta, algae and fungi, together with elementary physiology. In the practical will be included dissection and examination of parts of plants.

Zoology: The fundamental facts and laws, including specified types. General organisation of types, biological laws, structural phenomena, reproduction and diagnostic characteristics of lower forms of life. In the practical: Parts of the animals selected will require description, and some dissection is expected.

Biology: This is an alternative subject to zoology. It includes the differences between living and non-living matter; cells, integration, differentiation and division of labour. Enzyme action, transformation of energy in living matter; nutrition, stimulus, response, movement, chemical co-ordination and general mechanisms. Reproduction; embryo, and heredity. In the practical: Appropriate physiological experiments, dissection, microscopy and elementary embryology.

The B.Pharm. degree Final examination is the same for external as well as internal students, covering botany, chemistry, pharmacognosy, and pharmacy, and is set out in the syllabus for the Pharmaceutical Chemist qualification, *minus* forensic pharmacy. The degree cannot be taken until three years after matriculation, and includes the specified hours under the Pharmaceutical Society's examination, and is held once a year. Many institutions are recognised for the Intermediate Science, and some additions have been made for the B.Pharm. degree. The list can be obtained from the Registrar.

A degree granted by the University does not entitle to registration by the Pharmaceutical Society, but regulation 29 provides that any registered apprentice or student who has served the period of practical training and produces to the Registrar a notification of having passed the Final examination for the degree of bachelor of pharmacy of the University of London, or a corresponding degree of any other University approved by the Pharmaceutical Society's Council, shall be deemed to have passed the Pharmaceutical Chemist Qualifying examination in the subjects set out on the final certificate, and shall be entitled to enter the examination of the Society in forensic pharmacy and, on passing, be entitled to registration.

### MANCHESTER

Science degrees in pharmacy are conferred by the universities of Glasgow and Manchester. In Manchester, for the B.Sc. (Pharm.) degree, candidates must first pass the University Matriculation examination or its equivalent. They should then attend courses in chemistry, physics, botany and pharmacy, and present themselves for the Intermediate examination in the first three subjects at the end of the first year. Such candidates before proceeding to the Final examination, must present certificates of having attended (1) during the second year courses in chemistry (advanced), botany (advanced), and pharmaceutics; (2) during the third year further approved courses in chemistry or botany, and in pharmaceutics (advanced); and (3) must present satisfactory evidence that they can read scientific literature in either French or German, or in any other language approved by the Faculty. They should present for the Final examination (i) chemistry or botany, (ii) pharmaceutics. The lecturer in pharmacognosy, material medica and practical pharmacy is Mr. James Grier, M.Sc., Ph.C. The cost of a degree course varies with the subjects chosen and with the nature of the degree, but the average fees for an ordinary B.Sc. degree course amount to £37 16s. a session. Full particulars may be obtained from the Pharmaceutical Department, University of Manchester.

### GLASGOW

In Glasgow, candidates must first pass the Preliminary examination. In not less than three academic years they must attend courses of Instruction at the University or the Royal Technical College, and must have been "practically engaged in the operations of pharmacy." The regulations may be obtained from Jackson, Wylie & Co., 73 West George Street, Glasgow.

## Teaching Institutions

Schools and institutions are recognised by the Pharmaceutical Society in most parts of Great Britain, some for the Preliminary Scientific examination, and some for the Chemist and Druggist Qualifying and the Pharmaceutical Chemist Qualifying examinations. The following are the principal schools and institutions in question.

### ENGLAND AND WALES

#### LONDON

##### The School of Pharmacy

17 Bloomsbury Square, W.C.1

Dean of School: Prof. H. G. Greenish, D. ès Sc. A course for Part II only of the Chemist and Druggist Qualifying examination commences October 1930, ending June 1931. Fee, £31 10s. The first and second year of a two-year's course in pharmacognosy and pharmacy for the Pharmaceutical Chemist Qualifying examination and for the degree of B.Pharm. of the University of London commences October 1930, ending June 1931. This course has been arranged with University College, and an inter-collegiate time-table drawn up enabling botany and (in part) chemistry to be taken at University College and the other subjects at the Society's School. Fee for each year of the course, £44 2s. No course for Preliminary Scientific. Fees include full subscription to the Students' Association.

##### Birkbeck College

Bream's Buildings, Fetter Lane, E.C.4

Principal: George Senter, D.Sc. Recognised for Preliminary Scientific examination. Autumn term commences September. Evenings only.

##### Chelsea Polytechnic School of Pharmacy.

Manresa Road, Chelsea, S.W.3

Principal: F. J. Harlow, B.Sc., F.Inst.P., A.R.C.Sc. Pharmaceutics: C. Morton, B.Sc., Ph.C.; F. R. Bateson, Ph.C.; S. G. Stevenson, B.Pharm., B.Sc., F.I.C.; J. E. Woodhead, B.Sc., Ph.C., F.I.C. Chemistry: C. Dorée,

## Educational Information

M.A., D.Sc., F.I.C., Head; J. C. Crocker, M.A., D.Sc., F.I.C.; F. H. Lowe, M.Sc.; J. H. Skellon, B.Sc.; A. Hebdon, B.Sc. Biology: H. B. Lacey, F.L.S., Head; C. A. Ealand, M.A.; W. B. Turrill, D.Sc.; C. J. A. Berkeley, B.Sc.; W. H. Leigh-Sharpe, M.Sc.; Miss M. E. Millner, M.Sc. Physics: L. Lownds, Ph.D., B.Sc., F.Inst.P., Head; W. B. Medlam, B.Sc.; W. Mandell, Ph.D., M.Sc.; L. J. Freeman, Ph.D., A.R.C.Sc., D.I.C. Day and evening courses in preparation for the Preliminary Scientific, Chemist and Druggist, Pharmaceutical Chemist, and B.Pharm. examinations commence on September 22, 1930. Fees, Day Courses, £7 per term; Evening Courses, £1 to £3 per session (three terms). Apprentices are admitted to evening courses at reduced fees. Students may enrol on September 18 and 19, between 10 a.m. and 12 noon (day students), or 6 to 9 p.m. (evening students). A copy of the prospectus of the School of Pharmacy may be had on application to the Principal.

**Gordon Hall School of Pharmacy for Women**  
*Drayton House, Gordon Street, W.C.1*

Principals: Miss E. S. Hooper, B.Sc., F.I.C., Ph.C., and Miss K. M. King, Ph.C. Courses of training for the examinations of the Pharmaceutical Society and Society of Apothecaries. Hours of instruction, 10—4.30 p.m. Fees, 25 guineas per session. Particulars from Principals.

**London College of Pharmacy**  
*361 Clapham Road, S.W.9*

Staff: Irvine G. Rankin, B.Sc., Ph.C. (Principal), V. P. A. Gelli, B.Sc., P. M. Sully, B.Pharm., Ph.C. Nine, six and three months', also part-time, courses for the Preliminary Scientific and Chemist and Druggist Qualifying examinations. Fee, £10 10s. per term. Evening classes: Tuesday, Wednesday and Thursday. Scheme of preparatory study can be taken before entering College. New large histological and pharmacognosy laboratory now equipped. Large botanical garden containing over 300 specimens. Next session commences October 8.

**Norwood Technical Institute**  
*Knight's Hill, West Norwood, S.E.27*

Principal: L. N. Coombs, B.Sc. Day and Evening Classes for Preliminary Scientific examination. Staff: Chemistry and Physics, W. Gerrard, M.Sc. Botany, Ethel R. Spratt, D.Sc. Session opens September 15. London fee, from 15s. for part-time course.

**The South of England College of Pharmacy**  
*186 Clapham Road, S.W.9*

Principal: H. Lucas, Ph.C., F.C.S., assisted by a qualified staff of teachers. A six months' course for Part I. Fee, 20 guineas, and a nine months' course for Part II, fee 30 guineas; commence on October 8. The courses are independent and hours of instruction are 9.30 a.m.—5 p.m. daily. Revision courses, fee 10 guineas per term. Class for apprentices held every Wednesday, 2—9 p.m.

**Wandsworth Technical Institute**  
*High Street, Wandsworth, S.W.18*

Classes in chemistry, physics and botany for Qualifying examination of Pharmaceutical Society. Fee, 15s. a session.

**West Ham Municipal College**

Principal: T. C. Baillie, M.A., D.Sc., Head of Chemistry Department; G. Dean, M.A., D.Sc. Pharmacy and Materia Medica: W. A. Knight, Ph.C. Evening course in pharmacy, materia medica and chemistry, commencing September 22. Fees, 14s. to 28s. per session.

**Westminster College of Pharmacy**  
*190 Clapham Road, London, S.W.9*

Founder: G. S. V. Wills, Ph.C. Principal: P. H. Woodroffe, Ph.C., F.C.S., assisted by J. G. Everett,

Ph.C., A. E. Williams, M.P.S. Tuition for Preliminary Scientific and Qualifying examinations. Revision course of six weeks commences on August 6. Fee £6 6s. The 1930-31 session commences on October 8, and arrangements are made for revision and six and nine months' courses for the Preliminary Scientific and Chemist and Druggist Qualifying examinations. Part-time classes for Preliminary Scientific examination are held and preliminary instruction by correspondence courses.

**Wimbledon Technical College**  
*Gladstone Road, S.W.19*

Lecturers: F. C. Ray, M.A., Ph.D., A.I.C., C. T. Archer, M.Sc., D.I.C., T. C. Thrupp, B.Sc., D.I.C., R. P. Linstead, D.Sc., Ph.D. Classes for Preliminary Scientific examination Session commences September 22, 1930. Prospectus free on application.

**Woolwich Polytechnic**  
*Woolwich, S.E.18*

Principal: A. F. Hogg, M.A., F.C.S. Head of Chemistry Department: P. C. L. Thorne, M.A., M.Sc., Ph.D., F.I.C. Lecturer: J. G. Kettlewell, M.Sc. Head of Physics Department: T. B. Vinycomb, M.C., M.A. Lecturers: J. Poole, B.Sc., C. Dixon, B.Sc. Afternoon and evening classes. Fees: First afternoon or evening, 20s.; second, 10s.; any additional, 5s., per session of 36 weeks. Recognised for chemistry, physics and botany in Preliminary Scientific examination.

**PROVINCES**

**Aberystwyth, University College of Wales**

Principal: H. Stuart Jones, M.A., D.Litt. Courses in chemistry and botany adapted to the requirements of candidates for examinations of the Pharmaceutical Society. Prospectus from Academic Secretary.

**Accrington Technical School**

Principal: J. P. Ackroyd, B.Sc. Staff: N. Booth, B.Sc., S. Hopwood, A.M.C.T. Science course each year occupies three evenings of two and a-half hours each, one and a-half hour being devoted to practical work. Three years' course. Fee: 7s. 6d. a year.

**Barnsley Technical College**

Principal: D. Paton Grubb, B.Sc. (Edin.). Chemistry Department: A. Price, B.Sc. (Lond.), F.I.C. Session from September 8, 1930, to July 4, 1931. Affiliated to University of Sheffield. Recognised for Preliminary Scientific examination. Part-time course for apprentices in district. Fee: £2 2s. the session. Evening instruction in chemistry and physics, and in botany on one afternoon a week. Fees: 12s. 6d. per course a session.

**Barrow-in-Furness Technical College**

Lecturers.—Chemistry: T. Hopkins, Ph.D., F.I.C. Physics: G. Cole, B.Sc. Botany: H. H. Hughes, B.Sc. Evening classes in chemistry, September to April. Fees: 7s. 6d. to 10s. Day and evening courses for apprentices, September to July. Fees: Course, including chemistry, physics and botany, £3 3s

**Birmingham (Aston) Technical College**

Principal: Harry W. Webb, M.Sc., F.I.C., M.I. Chem.E. Chemistry Lecturer: J. C. Hutton, B.Sc. Physics: W. B. Wynn, B.Sc. Fees: Part-time day, £1 to £1 10s. per session. Evening classes, 10s. 6d. Recognised for chemistry and physics.

**Birmingham Central Technical College**

Principal: D. S. Anderson, Ph.D., B.Sc., M.I.Mech.E. Head of Pharmacy Department: H. Berry, B.Sc., Ph.C., A.I.C. Courses for the following examinations commence on September 29. Preliminary Scientific, Chemist and Druggist Qualifying, Pharmaceutical Chemist Qualifying, Intermediate B. Pharm. (London), Final B. Ph. (London). Particulars on application to the College, Suffolk Street.

# Educational Information

## Birmingham (Handsworth) Technical College

Principal: W. E. Harrison, B.Sc. Physics: E. A. Lees, A.R.C.S., H. J. Roper, B.Sc., A. P. Jones, M.Sc. Chemistry: W. W. Sirmans, B.Sc., W. H. Hardaker, M.Sc., B.Sc., L. G. Beresford, B.Sc. Botany: W. H. Hardaker, M.Sc., B.Sc. Recognised for Preliminary Scientific examination. Special courses for apprentices, also for Professional Preliminary examinations. Fees: Evening—Chemistry, physics and botany, 11s. 6d. per session. Day.—One half-day per week, £1 per session; two half-days, £1 10s. per session; additional half-days, £1 per session. Students under eighteen years of age, reduced fee of £1 per session for two half-days per week (additional half-days as above). Day classes fee includes admission to approved evening classes.

## Bolton Municipal Technical College

Head of Chemical Department: T. M. Nightingale, B.Sc. Chemistry: F. Smith, B.Sc., C. Smith, F.C.S., A. Sykes, B.Sc., F. Slater, B.Sc., H. E. Buckley, M.Sc., C. W. Wood, M.Sc. Physics: J. W. Grime, B.Sc., J. Stafford, B.Sc. Botany: Mrs. M. S. Burgess, B.Sc. Recognised for Preliminary Scientific examination. Course fees: 5s. to £2 2s. Non-Course fees: One or two evenings per week, from 7s. 6d. to 15s., according to year of study.

## Bournemouth Municipal College

Principal: C. E. Walker, M.A., B.Sc. Lecturers.—Chemistry: E. A. Seeley, Ph.D., A.I.C., Miss H. V. Davies, B.Sc. Botany: Miss H. V. Davies, B.Sc.; Miss G. A. Beer. Physics: R. M. Clark, B.Sc.; G. H. Hamilton, B.A., B.Sc.; T. T. Smith, B.Sc. Recognised for Preliminary Scientific examination. Day classes, fee, £6 6s. per term; reduced fees for part time. Evening classes, fee for grouped courses about £1 1s. per session of two terms. Session commences in September.

## Bradford Technical College

Principal: H. Richardson, M.Sc.; Head of Department of Pharmacy, F. N. Appleyard, B.Sc. (Lond.), F.I.C., Ph.C.; Assistant Lecturer in Pharmaceutics, T. C. Denston, Ph.C., Demonstrator in Pharmaceutics, D. W. Shaw, B.Sc. (Birm.), Ph.C.; Assistant Lecturer in Pharmacy and Materia Medica, J. W. Cooper, Ph.C. The college courses are recognised by the Pharmaceutical Society for the purpose of training students for the Preliminary Scientific, Chemist and Druggist Qualifying and Pharmaceutical Chemist Qualifying examinations; and by the University of London for the training of candidates for the degree of Bachelor of Pharmacy. A course is also provided for the Apothecaries' Hall Assistants' examination. Full particulars may be obtained on application to the Principal.

## Brighton Technical College

Principal: W. Mansergh Varley, M.A., D.Sc., Ph.D., F.C.S.; Head of Pharmacy Department, H. B. Mackie, B.Pharm., Ph.C., F.C.S. Session opens September 16, 1930. Systematic courses of instruction for Preliminary Scientific, Chemist and Druggist and Pharmaceutical Chemist Qualifying examinations, and for B.Pharm. degree of London University. The Cripps Exhibition is tenable at this College. The "Edmund White" Medal is awarded annually. Prospectus from Chief Clerk, Technical College.

## Bristol Merchant Venturers' Technical College

Principal: Andrew Robertson, D.Sc.; Superintendent, W. A. Andrews, B.Sc., A.I.C.; Head of Pharmacy Department, D. J. Williams, B.Sc., Ph.C.; Lecturers in Pharmaceutics, W. Cooper, Ph.C., G. H. Moore, Ph.C.; Lecturer in Botany, Miss E. E. M. Beer, B.Sc.; Laboratory Steward, V. Walsh; Head of the Chemistry Department, W. A. Andrews, B.Sc., A.I.C.; Lecturers in Chemistry, T. Malkin, B.Sc., Ph.D., A. Marsden, F.I.C., E. J. Riggs, B.Sc., H. J. Willavoy, B.Sc., A.I.C.; Demonstrator, A. B. Blunsden; Laboratory Stewards, Violet H. England, E.N.S.P. Palmer; Head

of Physics Department, Professor D. Robertson, D.Sc., M.I.E.E.; Lecturers in Physics, W. E. Palmer, B.Sc., H. J. Willavoy, B.Sc., A.I.C.; Laboratory Steward, Jessie Brittin. Courses are conducted in preparation for all pharmaceutical examinations.

## Cardiff Technical College

Principal: Charles Coles, B.Sc. Head of Pharmacy Department: R. Vernon Lloyd, B.Pharm., Ph.C. Lecturers in Pharmaceutics: J. M. Davies, Ph.C., L. L. Jones, Ph.C. Chemistry: H. B. Watson, D.Sc., A.I.C., E. A. Rudge, M.Sc., F.I.C., H. Aldred, M.Sc., P. H. Griffiths, B.Sc. Pharmaceutical Chemistry: H. A. Perkin, Ph.C. Physics: W. S. Vernon, M.Sc., J. Webber, B.Sc., F.S.M.C. Botany: J. Mangan, M.A., F.R.C.Sc. Nine-months' day course for Preliminary Scientific and Chemist and Druggist Qualifying examinations commence in October. Also two years' course for Pharmaceutical Chemist Qualifying examination, and three years' course for Degree in Pharmacy. Fee, £20. Apothecaries' Hall Assistants' examination, nine-months' course. Fee, £20. Pharmaceutical Chemist Qualifying examination. Fee: October to July, £20.

## Darlington Technical College

Principal: J. W. Angles, M.Sc., M.I.Mech.E. Chemistry: A. J. Bishop, B.Sc., and W. H. Ryder, M.Sc. Evening pharmacy course. Fees: 15s. to 25s. Recognised for Preliminary Scientific examination.

## Derby Technical College

Principal: W. A. Richardson, B.A., D.Sc., B.Sc. (Eng.), A.M.I.Mech.E. Lecturers.—Chemistry: J. Yates, M.Sc., F.I.C., G. E. Pool, B.Sc., F.I.C., A. Walton, M.Sc. Physics: G. H. Broom, B.Sc., F. Record, B.Sc., W. D. Jones, B.Sc. Botany: W. B. Randles, B.Sc. Courses arranged in day and evening classes. Fees: Day, £5 5s. per term; evening classes, 14s. per session. Recognised for Preliminary Scientific examination. Part-time day courses (one day per week and evening), £1 per session inclusive.

## Dover Technical Institute

Lecturers.—Chemistry and Physics: A. B. Constable, M.A., B.Sc., Oxon; W. E. Pearce, B.Sc.; S. Coase, B.Sc. Botany: T. E. Archer, M.A. (Cantab.). Chemistry, physics and botany courses especially intended for pharmaceutical students. Fee (evenings), 10s. for one, two or three subjects.

## Exeter, University College of the South-West of England

Principal: John Murray, M.A. Chemistry: Professor W. H. Lewis, M.A., F.I.C., T. S. Britton, D.Sc., F.I.C., Miss R. King, M.Sc. Physics: F. Newman, D.Sc., A.R.C.Sc., V. H. L. Seale, M.Sc. Botany: J. L. Sager, M.A. Courses include preparation for the Preliminary Scientific examination. Fees, £12 12s. The course for the Chemist and Druggist Qualifying examination has been transferred to Plymouth.

## Halifax Municipal Technical College

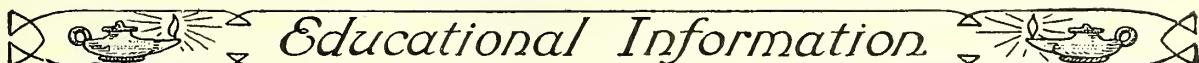
Principal: A. R. Boeree, M.A., B.Sc., F.I.C. Head of Chemistry Department: W. J. Stansfield, A.R.C.S., A.I.C. Lecturer in Botany: C. Fielding, Ph.C. Instruction (two sessions) for Preliminary Scientific examination. Afternoon and evening classes. Duration of session: September 8, 1930, to July 23, 1931. Fee, £1 1s. per session.

## Harrogate Technical School

Principal: W. E. C. Jalland, M.Sc. Chemistry: W. Wallis, Inte; B.Sc. Physics: T. H. Lusher, B.Sc., and F. R. Richardson, B.Sc. Botany: A. O. J. Lupton, B.Sc. Recognised for Preliminary Scientific examination. Evening classes. Fees, 10s. per session.

## Huddersfield Technical College

Principal: J. F. Hudson, M.A., B.Sc. Full day and evening courses in subjects for Preliminary Scientific examination for the Pharmaceutical Society are held.



## Educational Information

Also part-time courses in pharmacy and materia medica. Fee: Full-time, £12 12s. a session; part-time course, £3 3s. Prospectus on application.

### Hull Municipal Technical College

Head of Chemistry Department: Geo. E. Johnson, B.Sc., F.I.C., assisted by eight lecturers. Classes in inorganic and organic chemistry, physics, botany.

### Kingston-upon-Thames Technical College

Chemistry: Elementary, inorganic, Mr. R. Atkin, M.A., B.Sc. (Oxon); advanced, inorganic, Mr. F. W. G. Ridgewell, M.A. (Cantab), B.Sc.; organic, Mr. F. W. G. Ridgewell, M.A. (Cantab), B.Sc. Physics: Elementary, Mr. N. Greenwood, B.Sc., M.Ed.; advanced, Mr. F. W. G. Ridgewell, M.A. (Cantab.), B.Sc. Botany: Elementary, Miss L. M. Cunningham, B.Sc. (Edin.); advanced, Miss L. M. Cunningham, B.Sc. (Edin.). Fee for the full course for physics, chemistry and botany: £1 10s. Prospectus free from Principal.

### Lancaster Technical College

Headmaster: F. H. Mould, B.Sc., A.R.C.S. Lecturers: S. Walton, B.Sc., P. Gillman, B.Sc., W. Knowles, B.Sc., J. Baty, B.Sc., Miss E. Richardson. Recognised for Preliminary Scientific examination. Apprentices may attend on Monday afternoons and several evenings per week. Fees, 12s. 6d. to 17s. 6d.

### Leamington Technical School

Lecturers.—Physics: F. W. Onslow, B.Sc.; Chemistry: C. T. Freeman, M.A.; Botany and Biology (to be appointed). Recognised for Part I of Qualifying examination. Physics Friday, chemistry Wednesday, botany and biology Thursday. Times of classes, 7.30 to 9.30 p.m. Fee, 10s. per class.

### Leeds College of Pharmacy

Principal: A. W. Lupton, Ph.C. Full-time course for Chemist and Druggist Qualifying examination begins October 7, free £31 10s. Six months' course for Preliminary Scientific examination, £21. Revision course from August 11. Fee, £6 6s. Apothecaries' Hall course (nine months), £21, commences October 7.

### Leeds Technical College

Principal: J. H. Everett, B.Sc. Chemistry: R. Gawler, M.Sc., F.I.C., assisted by A. Taylor, M.Sc., H. E. Goodson, A.R.C.S., A.I.C., F. Crosland, B.Sc., M. S. Fox, B.Sc., R. A. Hobley, B.Sc. Physics: J. Crosfill, B.Sc., C. F. Crymble and L. Moore, M.Sc. Botany: Miss M. E. Malins, B.Sc., Rev. H. Parish, F.R.M.S. Day course in chemistry, physics and botany for the Preliminary Scientific examination. Fee for full-time day course, £18 18s. per annum. Part-time day courses from £3 3s. per annum. Evening courses from 15s. to 30s. per session (September to Easter). Evening course occupies three sessions. Preparatory evening course for the Preliminary Scientific examination; fee £1. Day course for Apothecaries' Hall examination, fee £15 15s. (September to July). Day session opens September 16; evening session opens September 22. Special evening class in bacteriology.

### Leicester College of Technology

Principal: L. W. Kershaw, B.Sc., A.M.Inst.C.E., F.G.S. Pharmacy Department: Head of Department, A. R. G. Chamings, B.Pharm., Ph.C.; Pharmacy, C. Gunn, Ph.C.; Chemistry, H. L. Long, B.Sc., A.M.I.Chem.E., A.I.C., R. W. Blount, B.Sc., A.I.C., L. P. Priestley, B.Sc., A.I.C.; Biology, E. J. B. Bish, Ph.D., B.Sc., H. M. Lacey, M.A.; Physics, E. Langton, B.Sc., E. Tyler, D.Sc., F.Inst.P., E. W. M. Heddle, M.C., M.A., B.Sc. Full-time courses for the following examinations of the University of London and the Pharmaceutical Society commence on September 15, 1930: One session (nine months' course) for Inter. B. Pharm., £15 per session; two sessions for B.Pharm., £21 per session; one session for Preliminary Scientific

examination (this course commences September 29, 1930), £15 per session; one session for Chemist and Druggist Qualifying examination, £21 per session; two sessions for Pharmaceutical Chemist Qualifying examination, £21 per session. A course extending over one session is also held for the Apothecaries' Hall examination, £21 per session.

### Leicester, The Wyggeston Grammar School

Headmaster: T. Kingdom, M.A. Staff: Chemistry: Alwyn Pickles, M.Sc. (Lond.), H. Garside, B.A. (Oxon). Physics: E. C. Cowell, B.Sc. (Lond.), D.I.C. Botany: H. M. Lacey, M.A. (Cantab.). Recognised for Preliminary Scientific examination; three-term session from September to July. Fee, £18 18s. for the session.

### Liverpool Municipal Technical School

Principal: J. Scholes Hague, M.Sc. Chemistry: A. E. Findley, B.Sc., F.I.C., F. J. Smith, B.Sc., Ph.D. Physics: S. S. Richardson, D.Sc. Botany: M. C. Pratt, B.Sc. Fees (three afternoon or evening classes weekly): £1 to £2 as to course. For the new session 1930-31 is the addition of a part-time Preliminary Science course. A two years' course is now arranged for Part I examinations, involving attendance on one afternoon and one evening only in addition to the half-closing day. This has been arranged at the request of the employers.

### Liverpool School of Pharmacy

Principal: H. Humphreys Jones, F.I.C., Ph.C., F.C.S., assisted by J. Butler, B.Sc., F.I.C., Ph.C., W. E. Coates, B.Sc., A.I.C., M.P.S., Philip H. Jones, F.I.C., R. A. Williams, Ph.C., M.P.S., W. G. Cottom, M.P.S., S. D. Littlewood, M.P.S. Revision course commenced August 6 for the October examination. Autumn session commences October 9. Six months' course for the Preliminary Scientific examination: Fee, 20 guineas. Nine months' course for the Qualifying examination: Fee, 30 guineas. Part-time classes (Preliminary Scientific) on Tuesday evenings and Wednesday afternoons and evenings, commence October 8.

### Manchester College of Technology

Principal: B. Mouat Jones, D.S.O., M.A. Lecturers.—O. R. Howell, Ph.D., R. J. Hughes, B.Sc., A. Adamson, M.Sc. Tech., H. N. Mercer, Ph.D., H. P. Walmsley, D.Sc., W. Anderson, B.Sc., W. O. Howarth, M.Sc. Complete course for Preliminary Scientific Qualifying examination given jointly with Botanical Department of University. Course extends over two years, and is also intended to prepare students for the Manchester, Fairchild and Leverhulme Scholarship Competitions held in June. Particulars on application to the Registrar. The course will begin on September 30, and students will be enrolled on Wednesday afternoon, September 24. The number in the first year is limited to forty.

### Manchester University

Lecturers in pharmaceutics: James Grier, M.Sc., Ph.C., H. Brindle, B.Sc., A.I.C., Ph.C., Miss Ivy Roberts, M.Sc., Ph.C., Miss J. Duncan, B.Sc., Ph.C., assisted by W. L. Fowlds, B.Sc., and L. H. Boardman, Ph.C. Courses for Preliminary Scientific, Chemist and Druggist and Pharmaceutical Chemist Qualifying examinations in Pharmaceutical Department commence in October; composition-fees from £23 2s. to £31 10s. Part-time (afternoon and evening) courses, extending over two years, have also been arranged for Preliminary Scientific examination at College of Technology. Degree courses in pharmacy are available. Special courses include bacteriology for senior students.

### Armstrong College, Newcastle-upon-Tyne, University of Durham

Pharmacy students admitted to classes in chemistry, physics and botany. Fees, £25-£30 per annum, according to the classes taken, registration fee, subscription to students' societies and university union, amounting to £5 13s. 6d. per annum.

# Educational Information

**Newport (Mon.) Technical College and Institute**

Principal: G. R. Bennett, B.Sc., M.B.E. Lecturers: Chemistry and Botany, A. Brennan, B.Sc., H. Rowland, B.Sc. Fees: Evening, £1 1s. for session; part-time day, £2 2s. for one day per week per session.

**Norwich Municipal Technical College**

Principal: Howard A. Costigan, Ph.D., B.Sc., A.I.C. Chemistry: W. W. Reed, M.Sc., Physics: D. J. Raffle, B.Sc., M.Sc., A. V. Lishman, B.Sc. Botany: P. P. F. Looker. Biology: H. J. Howard, F.L.S. Recognised for Preliminary Scientific examination. Combined day and evening courses. Session opens September 15. Fees: £1 to £1 10s. per session.

**Nottingham University College**

Principal: Professor H. Stewart, C.M.G., D.S.O., M.A. Pharmacy Department: Director, A. O. Bentley, Ph.C. Pharmaceutical Chemistry: J. E. Driver, M.Sc., Ph.D., and B. D. Shaw, B.Sc., Ph.D. Pharmacognosy: G. E. Trease, Ph.C. Pharmacy: H. A. Turner, Ph.C. Full-time day course (nine months) for Chemist and Druggist Qualifying examination. Fee, £30. Two years' course for B.Pharm. Degree and Pharmaceutical Chemist examinations. Fee, £33 15s. Also part-time courses for Preliminary Scientific examinations.

**Oxford City Technical School**

Department of Pure Science, Chemistry and Physics: J. S. Hill, M.A., B.Sc. Botany: H. Baker, M.A. Recognised for the Preliminary Scientific examination. Evening courses in chemistry, physics and botany, extending over three years. Inclusive fee per year 20s. Session opens Monday, September 22.

**Plymouth and Devonport Technical College**

Principal: W. S. Templeton, M.A., B.Sc. Physics: The Principal, F. C. Marks, B.Sc., G. H. Lock. Chemistry: R. R. Butler, M.Sc., A.I.C., F.C.S., T. Thorne Barnes, B.Sc. Materia Medica and Pharmacy: A. H. Ware, Ph.C., V. Smith, M.Sc., A.I.C., Ph.C. Botany: Miss O. S. Mundy, B.Sc., Miss F. Stanbury, M.Sc. Part-time courses for Preliminary Scientific Qualification held three afternoons or evenings each week. Fee: £3 3s. per session. Full-day courses for registered students. Fees: £15 to £20.

**Portsmouth Municipal College**

Principal: Leonard B. Benny, M.A. (Cantab.), B.A. (Lond.); Vice-Principal: W. H. Watson, M.Sc., A.R.C.S., F.C.S. Head of Pharmacy Department: F. Hemming, Ph.C., M.P.S., F.C.S. Lecturers: Pharmacy, N. Francis, Ph.C., M.P.S., Miss M. Wells, Ph.C., M.P.S. (sera and vaccines), J. A. D. Radcliffe, M.B., Ch.B.; Chemistry, G. M. Painter, (M.C.), B.Sc., A.I.C., W. F. Andrews, M.Sc.; Botany, Miss C. M. Gibson, B.Sc., Miss G. F. Selwood, B.Sc., Miss F. L. Beanland, M.Sc.; Physics, A. T. Guinevan, B.Sc., J. Daley, B.Sc., A.R.C.S., D.I.C.; Chemistry Demonstrator, N. St. Clair Jerome, B.Sc. The college is an approved institution under the regulations of the Pharmaceutical Society and the London University as a training centre for the following examinations: Preliminary Scientific, Chemist and Druggist Qualifying, Pharmaceutical Chemist Qualifying, Bachelor of Pharmacy (B. Pharm.).

**Preston, Harris Institute**

Principal: T. R. Jolly. Affiliated to Universities of Manchester and Liverpool. Tuition in chemistry, physics and botany. Session begins in September. Fee, £9 10s. per session of three subjects, or £3 3s. 4d. per term. One subject, £3 10s. per session; two, £7. Recognised for Preliminary Scientific examination.

**Salford Royal Technical College**

Principal: Bertram Prentice, D.Sc., Ph.D. Recognised for Preliminary Scientific examination. Day

courses and evening classes for pharmaceutical students in chemistry, botany and physics. Day-course fee: £3 3s. per term. Evening: 15s. to £1 5s.

**Sheffield Central Commercial College**

Principal: W. B. Marshman. Staff:—Chemistry: S. Birks, M.A., A.I.C., Ellis Jackson, B.Sc., G. R. Davies, B.Sc. Physics: S. Northeast, B.Sc., J. Hiles, M.Sc. Botany: A. Burgess, B.Sc. Recognised for Preliminary Scientific examination. Evening classes. Fee for complete course, £1 1s.; junior students, 12s. 6d.

**Southampton—University College**

Professor of Chemistry: D. R. Boyd, D.Sc., Ph.D., F.I.C. Special facilities in chemistry department for pharmaceutical students. Tuition fees and further particulars of the courses from the Registrar.

**Sunderland Technical College**

Principal: V. A. Mundella, M.A., B.Sc. Head of Pharmacy Department: Miss H. C. M. Winch, Ph.C., A.I.C., assisted by lecturers in each subject. Head of Chemistry Department: C. F. Baker, B.Sc., Ph.D. Recognised for Preliminary Scientific and Chemist and Druggist Qualifying examinations. Full-time day: Preliminary Scientific, October 1 to June 27; fee £18. Chemist and Druggist, September 22 to June 27; fee £20. Deposit fee in each case, £2 (15s. returnable). Part-time evening: Preliminary Scientific, three sessions, October 1 to June 27. Fees, 35s. to 40s. Chemist and Druggist (preliminary course), October 1 to June 27. Fees: 50s. to 70s.

**Swansea Municipal Technical College**

Staff:—Chemistry: E. A. Tyler, M.A., F.I.C. Physics: J. C. Kirkman, B.Sc., F.P.S. Botany: P. S. Jewell, M.A., A.I.C. Courses: Preparatory part-time day and evening; full-time nine months' course for Preliminary Scientific examination. Sessional fee, £15 15s. Session opens September 23.

**Wigan Mining and Technical College**

Principal: J. F. S. Ross, M.C., B.Sc., B.Sc. Eng. Head of Chemistry Department: E. B. Naylor, M.Sc., F.I.C. Lecturers: H. Crofts, M.Sc.; A. Cooksey, B.Sc., A.I.C. Lecturer in Botany and Biology: H. B. Clint, Ph.D., B.Sc. Full-time pharmaceutical course (fee, £10 10s.); revision course (£2 2s.); part-time day and evening courses (£1 1s.). Recognised for Preliminary Scientific examination. Classes for Apothecaries' Assistants' examination and for Chemist and Druggist Qualifying examination.

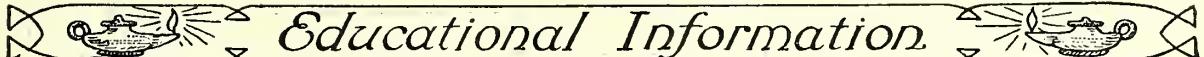
**Wolverhampton and Staffordshire Technical College**

Head of Chemistry Department: W. Regan, B.Sc. Lecturer in Chemistry: M. Schofield, M.A., B.Sc. Materia Medica and Pharmacy: J. M. Caley, M.P.S. Botany: G. D. Hogan. Physics: W. R. Torrance, B.Sc., M. Schofield, M.A., B.Sc. Session, September to April, followed by short summer session. Fees: Chemistry or pharmacy course, £1 10s.; evening lecture only, 10s. 6d. per session each subject; evening lecture with laboratory work, £1 per session each subject.

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**SCOTLAND**
**Aberdeen, Robert Gordon's Colleges**

Chemistry: W. Maitland, D.Sc., R. Craven, B.Sc., J. Lynch, B.Sc., J. E. Ritchie, M.A., B.Sc., F.I.C. Pharmacy: E. G. Bryant, B.Sc., Ph.D., Ph.C., D. S. Rattray, Ph.C. Physics: J. D. Stewart, M.A., G. O. Clark, M.A., B.Sc., Samuel M. Gill, Ph.C. Day courses: Preliminary Scientific, Chemist and Druggist Qualifying, and Pharmaceutical Chemist Qualifying examinations, October 7, 1930, to June 2, 1931. Fee: Each course, £21. Evening Preliminary Scientific course over four years. Fee: Each stage, £2.



## Educational Information

### Dundee Technical College and School of Art

Heads of Departments:—Botany and pharmacy: D. McCall, B.Sc., Ph.D., Ph.C. Assistants: W. B. Proudfoot, Ph.C., and Miss Margaret T. Martin, M.Sc. Chemistry: C. W. Cochrane, D.S.O., B.Sc. Assistant: W. S. Liddle, B.Sc. Students are prepared for all examinations of Pharmaceutical Society of Great Britain and for degree of B.Pharm. of London University. Classes begin September 22. Evening classes in botany, chemistry and physics on September 8. Fees: Day classes, £22 1s.; evening classes, £1 to £1 1s. per session.

### Edinburgh, Heriot-Watt College

Principal of College: J. Cameron Small, O.B.E., F.R.S.E. Professor of Chemistry: A. Archibald Boon, D.Sc., B.A., F.I.C., F.R.S.E. Lecturers: Chemistry: James Sandilands, F.I.C., A.H.-W.C.; R. G. M. Dekers, B.Sc., F.I.C., A.H.-W.C.; Hugh H. Campbell, B.Sc., A.I.C., A.H.-W.C.; Hugh B. Nisbet, B.Sc., F.I.C., A.H.-W.C. Physics: Head of department: William Watson, M.A., B.Sc. Lecturers: John Milne, B.Sc.; T. G. Malpas. Botany: Andrew Howison, M.A., B.Sc. Pharmaceuticals: J. C. Henderson, Ph.C. and W. Martin, M.P.S., F.I.C., and demonstrators. Complete courses of instruction for examinations of Pharmaceutical Society, viz., the Preliminary Scientific and Chemist and Druggist Qualifying examinations. Winter Session commences in October. Full particulars from Professor Boon.

### Edinburgh, The Royal Dispensary and School of Pharmacy

Staff: Eric A. Knott, Ph.C., F.C.S. (Principal), assisted by Francis J. Jackson, Ph.C., Ian D. Campbell, Ph.C., and M. G. Knott, M.A. Complete courses in the subjects for the Preliminary Scientific examination and the Chemist and Druggist Qualifying examination are provided in the day classes of this school. Fees: Preliminary Scientific examination, six months' course, £21; Qualifying Chemist and Druggist examination, nine months' course, £31 10s. Hours: 9 a.m. until 5 p.m. daily. Evening and part-time classes for the Preliminary Scientific on Mondays, Tuesdays and Thursdays, 7.30 p.m. to 9.30 p.m. Fee for session: £10 10s.

### Glasgow Royal Technical College

Superintendent, and lecturer in botany: Professor David Ellis, D.Sc., Ph.D., F.R.S.E. Assistant lecturer in botany: Miss B. Lloyd, M.Sc., Ph.D. Demonstrator: G. Ratray. Lecturer in pharmacy and pharmacognosy: J. P. Todd, Ph.C. Assistant lecturer: E. J. Schorn, A.I.C., Ph.C. Demonstrators: J. Coutts, Ph.C., N. V. Maxwell, Ph.C. Classes for the Preliminary Scientific, Chemist and Druggist Qualifying and Pharmaceutical Chemist Qualifying examinations, and also for the degree of B.Pharm., with evening classes for the Preliminary Scientific examination, begin in September. Degree course, 90 guineas, in three annual instalments of 30 guineas; other day courses, 20 guineas per annum. A prospectus giving full information may be obtained free on application to the Secretary. Enrolment dates: September 17 to 19 for evening classes and September 23 for day classes.

### Paisley Technical College

Principal: Lewis F. Richardson, D.Sc. (Lond.), F.R.S. Head of Chemistry Department: G. G. Gardiner, B.Sc. (Lond.). Lecturers:—Chemistry: Thomas A. Wilson, F.I.C., Wilfred Whalley, B.Sc. (Vic't.), J. McKean, F.I.C., John Armour, B.Sc. (Lond.), Agnes J. Kelly, B.Sc. (Lond.). Botany: Alex. C. MacLean, B.Sc. (Lond.); Blodwen Lloyd, Ph.D., M.Sc., Gordon Ratray, M.P.S. Physics: J. Denholm, P. M. McConnell, B.Sc. (Glas.), J. C. Young, B.Sc. (Lond.). Recognised for Preliminary Scientific examination: Session commences September 17. Enrolment, September 10, 11, 12. Fee: 25s.

### Dispenserships

Official positions as dispensers or "pharmacists" are open to registered chemists and druggists in hospitals, dispensaries and other public institutions as follows:—

**ARMY.**—Pharmacists enlisting into the Royal Army Medical Corps are classified as follows: Class III on enlistment, and Class I after one year's service, provided that they have (a) passed the class of instruction of the Royal Army Medical Corps Depôt, (b) qualified as nursing orderly, Class III, (c) qualified in the following subjects of the Dispensers' examination: Surgical instruments and field medical equipment, medical supplies and accounts.

**MENTAL HOSPITALS.**—The rate of pay for dispensing chemists in the London County mental hospital service is:—Men and women at the large hospitals, £270 per annum, rising by £15 annually to £405; women at the Maudsley Hospital and The Manor, £220, rising by £10 annually to £250, and then by £12 10s. annually to £300. Annual leave of twenty-one days is allowed.

**NAVY.**—The Pharmaceutical Service consists of the following grades: (a) Head pharmacist; (b) superintending pharmacists; (c) senior pharmacists; (d) pharmacists. The age of pharmacists on entry must not be less than twenty-one nor more than twenty-eight years. Candidates must possess certificates that they hold either the Major or the Minor qualification of the Pharmaceutical Society of Great Britain or the certificate of competency granted by the Pharmaceutical Society of Ireland, and produce testimonials and a full record of training, qualifications and experience. Candidates chosen by the Medical Director-General of the Navy, Queen Anne's Chambers, Tothill Street, London, S.W.1, will be summoned to interview before a Selection Board; no travelling expenses are payable out of public funds, and each successful candidate is required to pay a fee of £3. Members of the Pharmaceutical Service will be required to serve in any of R.N. Hospitals to which they may be appointed, either at home or abroad. Pharmacists will be paid an inclusive salary of £120 per annum on entry, rising by £5 annually to £170. They will also be provided with quarters suitable for unmarried men. When such quarters cannot be provided, an allowance of £35 a year will be granted in lieu. The salary for senior pharmacists is £175—£7 10s.—£250, together with quarters or an allowance of £35 a year in lieu. The scale of salary for superintending pharmacists is £250—£10—£350, together with quarters or an allowance of £35 a year in lieu in the case of those in receipt of salaries of less than £300, or an allowance of £50 in the case of the remainder.

**PUBLIC ASSISTANCE INSTITUTIONS.**—Appointments of dispensers under the old poor-law service are now made by boroughs or county councils. Under the Poor Law Order of 1930 such dispensers are not included in the list of principal officers. The salaries vary, each authority fixing its own scale. The positions are open to chemists and druggists and a few other classes of dispensers. The transferred dispensers are entitled to remain under the Poor Law Officers' Superannuation Act, 1896, if they have claimed within three months of the appointed day (April 1, 1930) or come within the Local Government and other Officers Act, 1922, where the Act has been adopted. Where the hospitals are administered under the Public Health Acts, as many of the larger ones are, the appointments will rest with the councils and carry no terms of office, but the dispenser may be classed as a principal officer.

**PRISON COMMISSION.**—The rates of pay and allowances for pharmacists in the prison services are £2 8s. a week, rising to £3 10s., with medical attendance and medicines in certain conditions and a temporary bonus, varying with the cost of living. Quarters are provided, or 10s.—12s. a week in lieu, and 3s. a week in lieu of uniform. Candidates for appointment must hold the Pharmaceutical Society's qualification, and it is necessary to be within the prescribed age limits (twenty-four to thirty-five years). There is a probationary period of twelve months at the candidate's own expense.

# Educational Information

## Ireland—I. Free State

PHARMACY in the Irish Free State has, since the year 1925, been carried on with a diminution in support from the Northern Counties, now a separate entity. The membership of the Pharmaceutical Society of Ireland has increased, however. The existing Acts affecting Free State pharmacy remain in force, and are referred to annually, so far as the sale of poisons is concerned, in *The Chemist and Druggist Diaries*. The principal legislative enactment is the Pharmacy Act (Ireland), 1875, which set up a class of qualified persons, pharmaceutical chemists, to keep open shop for retailing, dispensing and compounding poisons and medical prescriptions. The amending Act of 1890 brought into existence chemists and druggists and registered druggists on a statutory basis, and introduced a qualification for assistants to pharmaceutical chemists enabling them to transact the business of a shop during their employers' temporary absence. The Irish Pharmacy Acts, 1875 and 1890, differ from the corresponding Acts for Great Britain in that mention is made of the subjects in which candidates for the Licentiate and the Registered Druggist qualification are to be examined—with the addition, in the earlier Act, of "such other subjects as may from time to time be prescribed by any regulations made in pursuance of this Act." The Registrar and Clerk to the Council of the Pharmaceutical Society of Ireland is Mr. James J. Kerr, M.P.S.I., 67 Lower Mount Street, Dublin.

### Preliminary Examination

The Pharmaceutical Society of Ireland conducts its own Preliminary examination. It also accepts (provided that every Certificate accepted shall include Latin as one of its subjects):—The Matriculation or Preliminary examination of the University of Dublin, Public Entrance examination (Large Certificate); the National University of Ireland Matriculation examination; the Queen's University of Belfast Matriculation examination; the Royal Colleges of Physicians and Surgeons, Ireland, Preliminary examination; the Intermediate Education Board for Ireland, Middle or Senior Grade examinations in the following subjects:—English, Latin, arithmetic, algebra, geometry and Greek, or a modern language. A certificate of having passed a Preliminary examination shall not be required from any person who shall have lodged with the registrar an Intermediate or Leaving certificate of the Secondary Education Branch of the Department of Education of such person having passed the relative examination in all the following subjects:—English, Latin, mathematics, Greek, or a modern language, or such other examination as shall be deemed by the Council as equivalent thereto, all the subjects having been passed at one time. Any such examination to be passed prior to the statutory service at pharmacy unless such service has been commenced before January 1, 1907. No examination passed after January 1, 1929, will be accepted in lieu of the Preliminary examination that does not include the Irish language.

The subjects of the Preliminary examination are:—

**COMPULSORY SUBJECTS:**—English, Latin, Mathematics. Pass marks to be 40 per cent. Irish. Pass marks to be 30 per cent. Elementary chemistry or elementary botany. Pass marks to be 40 per cent.

**OPTIONAL SUBJECTS** (any one of the following):—Greek, French, German, or any modern language. Science, commerce. Pass marks to be 30 per cent. Elementary chemistry or elementary botany, if not taken as a compulsory subject. A candidate rejected at an examination can be re-examined in three months. The standard to be as the Intermediate Certificate syllabus. (Order of December 10, 1927.)

The examination is held at 67 Lower Mount Street, Dublin, on the first Thursday and following day in January, April, July and October, at 10 a.m. A fee of £3 3s. must be lodged with the Bank of Ireland to the credit of the Society, and the receipt forwarded to the Registrar (Mr. James J. Kerr, M.P.S.I.), 67 Lower Mount Street, Dublin, with birth certificate and the name of the optional subject, at least fourteen clear days before the commencement of the examination. The re-examination fee is £2 2s. Copies of examination papers are supplied for a limited period at 1s. 1d. a set, post free.

**Note.**—The regulations are at present in process of revision.

## IRISH (FREE STATE) PHARMACY QUALIFICATIONS

(IN BRIEF)

### L.P.S.I.

1. Pass Recognised Preliminary before apprenticeship.
2. Four years' apprenticeship in a pharmacy.
3. Courses, in an approved institution, of three months in (a) Theoretical Chemistry, (b) Botany and Materia Medica, (c) Practical Chemistry.
4. Pass Pharmaceutical Licence Examination after the age of 21.

### R.D.

1. Serve four years as assistant or apprentice.
2. Pass Registered Druggist Examination.

### PHARMACEUTICAL ASSISTANT

As for L.P.S.I., but need not be 21, nor have taken courses of instruction.

### Pharmaceutical Licence

The qualifying examination for pharmaceutical chemist in Ireland is that of Licentiate. The conditions to be fulfilled before entering upon the Pharmaceutical licence examinations are:—

(a) After preliminary registration the person must serve four years as apprentice, or assistant with, and in the sole employment of, a pharmaceutical chemist, or a chemist and druggist of Great Britain, or an apothecary, or a firm of legally qualified pharmaceutical chemists, chemists and druggists of Great Britain, or apothecaries in an open shop, and the candidate must spend the business day with his employer. (Provision is made for service with more than one employer, and, for those who have served four years with a chemist and druggist or registered druggist in Ireland, two years' further service with a pharmaceutical chemist or an apothecary suffices.)

(b) Attend three months' courses of lectures in theoretical chemistry and in botany and materia medica, and a three-months' course of practical

chemistry (after the lectures in theory) at one or other of the following approved institutions:—

School of the Pharmaceutical Society of Ireland.

School of the Pharmaceutical Society of Great Britain.

Central Technical Institute, Waterford.

Municipal Technical School, Ballymena.

Municipal Technical School, Londonderry.

Municipal Technical School, Drogheda.

Municipal Technical Institute, Limerick.

City of Dublin Technical Schools.

Government School of Science, South Kensington.

Queen's University, Belfast.

University College, Galway.

Royal College of Science for Ireland, Dublin.

Royal College of Surgeons in Ireland, Dublin.

School of Physic, Trinity College, Dublin.

Anderson's Medical School College, Glasgow.

Royal Academic Institution, Belfast.

Municipal Technical Institute, Belfast.

Crawford Municipal Technical Institute, Cork.

Municipal Technical School, Newry.

Central Technical Institute, Clonmel.

Municipal Technical Schools, Dundalk.

Municipal Technical School, Lurgan.

City of Galway Technical Institute.

Crawford Municipal School, Cork.

University College, Dublin.

Trinity College, Dublin.

Some of these are approved for all the subjects, others for one or two subjects only.

# Educational Information

(c) The person must be twenty-one years of age.  
 (d) Declarations and certificates of the foregoing must be lodged with the Registrar when the candidate applies for entry to the Licence examination.

The examination commences on the second Wednesday day of January, April, July and October, at 10 a.m., and is held in the Pharmaceutical Society's House, Dublin. Candidates must give notice of intention to attend, to the Registrar, fourteen clear days before the date of the examination, and this must be accompanied by a receipt of having paid the fee (£10 10s.) into the Bank of Ireland to the credit of the Society. The necessary forms should be procured well in advance. The re-examination fee is £4 4s. The examination, which is written, practical and oral, is in the following subjects:

**BOTANY:** Recognition of the principal indigenous plants used in medicine, their natural orders, and the characters of their several parts.

**MATERIA MEDICA:** Recognition of B.P. drugs; their characters, active principles, sources, official preparations, and adulterations.

**CHEMISTRY:** Elementary laws of chemistry and physics, including equations. Recognition of B.P. chemicals, description of the processes by which they are obtained, qualitative analysis (including B.P. tests) and volumetric analysis, and a practical examination in these subjects. (The Council recommends "Text Book of Pharmaceutical Chemistry" (Bentley and Driver).

**PRACTICAL PHARMACY:** Translation of Latin prescriptions, detection of dangerous doses, and compounding and dispensing. Processes of making and recognition of B.P. non-chemical preparations, and an intimate knowledge of the Sale of Poisons (Ireland) Act, 1870.

### Assistants to Pharmaceutical Chemists

This examination, instituted as a qualification for assistants left temporarily in charge of the business of a pharmaceutical chemist, is held quarterly, being on the Saturday following the examination for the Pharmaceutical Licence. This permits candidates "referred" at the latter examination to enter for the assistants' examination on payment of a fee of £1 1s. New candidates pay, in addition, a registration fee of £1 1s. The re-examination fee is £1 1s. The conditions are similar to those of the Licence examination, but the candidate need not be twenty-one years of age, nor have taken a special course of instruction. The subjects are:—

**PRESCRIPTIONS:** Candidates will be required to read autograph prescriptions, translate them into English, render a correct translation of the directions for use, and detect unusual doses.

**PRACTICAL DISPENSING:** To weigh, measure and compound medicines, write the directions in suitable language, finish and properly direct each package.

**MATERIA MEDICA AND QUALITY OF SPECIMENS:** To recognise the Pharmacopœia chemicals in frequent demand, and specimens of roots, barks, leaves, fruits, resins and gums in ordinary use; also to estimate the quality of each specimen submitted, and its freedom from adulteration.

**PHARMACY:** To recognise the preparations of the Pharmacopœia which are not of a definite chemical nature, such as extracts, tinctures and powders, and give the proportions of the more active ingredients.

The candidates will also be examined in the Sale of Poisons (Ireland) Act.

### Registered Druggists

The subjects of the examination are prescribed by the Pharmacy Act (Ireland) Amendment Act, 1890, and are as follows:—

English orthography and composition.  
 Arithmetic, and the weights and measures of the British Pharmacopœia.  
 The appearance of properties of the various drugs and chemicals in general use.  
 The Sale of Poisons (Ireland) Act.

The examination is open to anyone who has served as an assistant or apprentice for not less than four years to a pharmaceutical chemist, chemist and druggist, registered druggist, or licentiate apothecary, keeping open shop, and is held in Dublin on the second Tuesday of January, April, July and October. Applications for

admission, accompanied by the necessary declarations of service and a receipt for £4 4s. placed to the credit of the Society in the Bank of Ireland, must be made to the Registrar at least fourteen days before the dates of the examinations. The re-examination fee is £2 2s.

## II. Northern Ireland

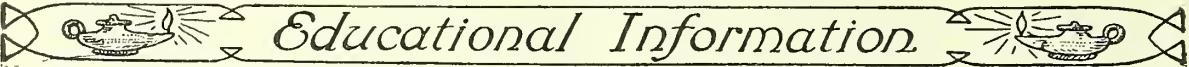
### Preliminary Examination

Northern Ireland differs from Great Britain and the Irish Free State in having as its objective a single class of pharmacists, namely, pharmaceutical chemists, the former grade of druggist registered under the older Irish Act of 1890 being destined to disappear. The Pharmacy and Poisons Act (Northern Ireland), 1925, under which this change is taking place, provides a modified examination for registered druggists who wish to qualify as pharmaceutical chemists; and many have thus secured the higher qualification. The Registers of the Pharmaceutical Society of Northern Ireland contain the names of (1) pharmaceutical chemists, (2) superintendents of bodies corporate entitled to carry on the business of pharmaceutical chemists, (3) chemists and druggists, (4) superintendents of companies entitled to trade as chemists and druggists, (5) registered druggists, (6) superintendents of companies entitled to trade as registered druggists, (7) certified assistants to pharmaceutical chemists, (8) apprentices to pharmaceutical chemists.

Before a student can become apprenticed he must pass a Preliminary examination in English, mathematics, and three other subjects (one of which must be a language) from the following list: Latin, Greek, French, German, Spanish, Italian, Irish, modern history, geography, botany, chemistry, physics or mechanics. The five subjects must have been passed at one, or not more than two, of the following examinations:—The Matriculation examination of the Queen's University, Belfast, or any examination accepted by the University as equivalent to these examinations, including the Preliminary examinations of the Royal College of Physicians and Surgeons in Ireland, Educational Institute of Scotland, College of Preceptors, Junior Certificate of the Ministry of Education, Northern Ireland. The majority of candidates will probably take the Pharmaceutical Preliminary examination of the Queen's University, for, although the Pharmaceutical Society of Northern Ireland does not hold its own Preliminary examination, the University authorities in the examination mentioned conduct what is virtually the official examination. Candidates in the first instance must apply to the Secretary of the Pharmaceutical Society of Northern Ireland, 55-56 Scottish Provident Buildings, Belfast, at least one month before the last day of entry for Matriculation. They will be examined on the papers set for the Queen's University Matriculation examination, and must reach the standard set for the Pharmaceutical Preliminary, which is below Matriculation standard. An application for the Preliminary certificate of apprenticeship to a pharmaceutical chemist must be accompanied by £3 3s. Having obtained this, the student will register officially as an apprentice at the Ministry of Home Affairs (fee 5s.). A four-years' apprenticeship to a pharmaceutical chemist or four years with a registered druggist and two years with a pharmaceutical chemist then begins.

### Pharmaceutical Chemists

Under the Regulations there are various transitory provisions whereby persons already in the trade at different stages of advancement when the Act was passed undergo modified conditions of examination. Full particulars of these may be obtained from the Secretary. Having satisfied the requirements as to apprenticeship and attendance at approved courses of instruction the candidate under the new Regulations must pass Part I, the subjects of which are botany, chemistry Part I, physics and business methods [or pass the Intermediate examination of the Queen's University, Belfast]:—



## Educational Information

**BOTANY.**—The elements of plant morphology and anatomy, physiology classification. Practical examination of plants and preparation of sections for the microscope.

**CHEMISTRY, PART I.**—An elementary knowledge of chemical action, laws, valency; non-metals, metals, carbon, methane, ethylene and acetylene; methods of determining carbon, hydrogen, oxygen and nitrogen in organic compounds. Solve simple problems in weight and volume. *Practical.*—Preparation of inorganic substances; qualitative and quantitative (volumetric) analysis.

**PHYSICS.**—Elementary knowledge of mass, energy and work, solids, liquids, gases; temperature; propagation of light, magnetism and electricity. *Practical.*—Perform simple experiments on the above.

**BUSINESS METHODS.**—Book-keeping, including business books required in a pharmacy; double entry; balance sheets; commercial law relating to master and servant, leases, agreements and contracts. A working knowledge of matters likely to arise in pharmaceutical practice relating to licences, insurance, income tax, partnership and company trading, elementary principles of advertising and salesmanship; modern methods of window display; shop-craft, including arrangement of a shop, windows, heat, ventilation, counters, wall and counter cases and general layout.

Having passed Part I at not more than two examinations, the candidate supplies evidence of age, 21, attendance at approved courses in the subjects of Part II as follows. [Alternatively, the candidate may submit to the Board of Examiners evidence that he has passed the examination in all subjects of Final Part I for the B.Sc. in pharmaceutics of the Queen's University, Belfast, and present himself for oral and practical examinations in pharmacy, practical pharmacy, Latin and prescription-reading. A candidate who fails to satisfy the examiners in any one of these three subjects must present himself in all three subjects at any subsequent examination]:—

**PHARMACOGNOSY.**—Recognition of B.P. drugs, their sources, characters, active principles, varieties, natural orders, knowledge of B.P. tests of crude drugs or official products.

**PHARMACY.**—Knowledge of operations requiring heat, disintegration of solid substances, filtration, expression, solution, art of dispensing, manufacture of galenicals.

**LATIN AND PRESCRIPTION-READING.**—Translation of Latin prescriptions; detection of errors; knowledge of posology; percentages.

**PRACTICAL PHARMACY.**—Perform operations of the B.P. in making galenicals. Compound and dispense medicines.

**FORENSIC PHARMACY.**—Knowledge of poisons in the fourth Schedule to the Pharmacy and Poisons Act (Northern Ireland), 1925, and conditions relating to keeping, selling and dispensing. Dangerous Drugs Acts and Regulations.

**CHEMISTRY, PART II.**—General knowledge of B.P. and common alkyl and aryl compounds, adulterations in B.P. inorganic and organic compounds and methods of determining purity. *Practical:* Identify specified organic compounds; detect adulterants of B.P. substances; volumetric and nitrometric determinations; methods of preparing more important inorganic and specified organic compounds; alkaloidal determinations.

The examinations are held in June and December, examination fees being £4 4s. for Part I and £8 8s. for Part II. For re-examination, half these fees.

### Irish Educational Institutions

#### Pharmaceutical Society's Schools

67 Lower Mount Street, Dublin

Director: Chemistry School, Professor H. Norminton, M.Sc.; Botany and Materia Medica School, Dr. W. H. Ashmore, L.R.C.P.I., M.B., B.Ch., B.A.O. (N.U.I.); Dr. P. O'Connor, D.Ph., B.Sc. Pharmacy Class, Mr. Thomas J. Smith, M.P.S.I., on Mondays and Wednesdays, from 7.30 to 9.30, and the student must attend at least twenty lectures to obtain a certificate. Three sessions commence on October 1, January 1, and April 1. Fees: Theoretical chemistry (three months), £1 11s. 6d.; practical chemistry (100 hours), £8 8s.; practice course (three months), past students, £2 2s.; students of other schools, £4 4s.; botany and materia medica (three months), £3 3s.; pharmacy, £3 3s.; students of other schools, £4 4s. The theoretical chemistry course must be completed before the practical chemistry course is commenced. Botany and materia medica classes held on Tuesday and Thursday evenings.

#### Belfast Chemists' and Druggists' Society

Lecturer: Mr. Arthur Storey; L.P.S.I. Courses in pharmacy, pharmacognosy, botany, chemistry. Fees for each class, £1 1s. per quarter.

#### Belfast Municipal College of Technology

Head of Chemistry Department: Professor H. Wren, D.Sc.; Lecturers in pharmaceutical subjects, C. J. Still, Ph.D., M.Sc., and C. W. Young, Ph.C. The Pharmaceutical Section of the Pure and Applied Chemistry Department provides day and evening courses covering the full syllabuses for the examinations of the Pharmaceutical Society of Northern Ireland. Under the co-ordination scheme with the Queen's University of Belfast students may also obtain the degree of B.Sc. in Pharmaceutics.

### Apothecaries' Assistants

Section 17 of the Apothecaries Act, 1815, enacted that an examination should be instituted for the purpose of granting certificates to persons "to act as an assistant to any apothecary." The conditions are as follows:—

(a) The candidate (male or female) must be at least eighteen years of age. (b) A certificate of general education up to the age of sixteen must be produced. (c) A certificate signed by a principal teacher of chemistry at a university, college, technical institute, school of pharmacy, or a secondary school, or by a person possessing a university degree in science, or a fellowship of the Institute of Chemistry, showing that instruction in chemistry has been taken for 200 hours, and that experiments have been performed by the applicant, and (d) a certificate, signed by an assistant of the Society holding a public appointment, a registered chemist and druggist, or a registered medical practitioner, showing that instruction in practical pharmacy has been taken for 200 hours and practical work done for nine months, must be produced. (e) The candidate must pass an examination in (1) compounding and dispensing medicines (a practical examination), (2) chemistry, materia medica, pharmacy, and the translation of prescriptions (an oral examination).

Particulars are obtainable from Mr. Frank Haydon, L.R.C.P., Secretary to the Court of Examiners, Apothecaries' Hall, Blackfriars, London, E.C.4. Fee £6 6s.

Similar powers are possessed by the Apothecaries' Hall of Ireland, 95 Merrion Square, Dublin. Fee £4 4s.

### Scholarships and Prizes

THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN offers annually three medals for competition by pharmaceutical chemists who have passed the Pharmaceutical Chemist Qualifying examination during the year, and were members or student-associates of the Society at the time of passing. The (written) examination is in *materia medica*, botany, and chemistry, and is held shortly after the Major examination in April. The first prize is the Pereira silver medal and £7 10s. worth of books; second, the Society's silver medal and books worth £2 10s.; and third, the Society's bronze medal and books worth £2 10s. The Society also has in its gift the following:—

*The Jacob Bell Scholarship.*—A scholarship of the value of about £56 10s., offered annually by the Society as a memorial of Jacob Bell. The award comprises free instruction at the Society's School, a sum of money and a gift of books. The scholarship, tenable for one or two years in respect of various courses of study at the option of the Bell scholar, is open only to student-associates of the Society. Details are obtainable from Mr. Hugh N. Linstead, Secretary and Registrar, 17 Bloomsbury Square, London, W.C.1.

*The Burroughs Scholarship* of about £50, awarded (together with apparatus, etc.) to a pharmaceutical chemist or a graduate in pharmacy of an approved university every fourth year for the purpose of obtaining instruction in the Society's laboratory, and tenable for two years.

*The Devon and Cornwall Exhibition in Pharmacy*, of the annual value of about £25, is tenable at the University College of the South-West, Plymouth, and is applied to the payment of tuition fees. Candidates must have been trained during a specified period in Devon or Cornwall.

*Herbarium Prizes.*—The Council of the Society offers annually to its student-associates a silver medal, a bronze medal and certificates of honour for an herbarium of British plants collected in any part of the United Kingdom, the Channel Islands or the Isle of Man between January 1 in one year and July 1 in the following year.

*The Charles James Hewlett Memorial Exhibition* is of the value of about £15, and is awarded annually on the recommendation of the dean of the Society's School to the student-associate (other than a Bell scholar) who most distinguishes himself during attendance at the first year of the course for the Pharmaceutical Chemist Qualifying examination or for the B. Pharm. degree.

*Leverhulme Scholarships.*—A fund endowing three scholarships of the annual value of £60 each was presented to the Society by the late Lord Leverhulme in 1923. Students between the ages of nineteen and twenty-two who have completed the period of practical training for the Qualifying examination are eligible. The examination is held on the first Tuesday in July in certain centres. The first scholarship carries with it a gold medal and £5 worth of books, and the second a prize of books to the value of £5.

*The Manchester Pharmaceutical Association Scholarship* is open to student-associates of the Pharmaceutical Society who have served an apprenticeship in Lancashire, Cheshire, or the High Peak Parliamentary Division of Derbyshire. It has an annual value of about £34. The examination is the same as for a Bell Scholarship. (See *Jacob Bell Scholarship*.)

*The Petrie Trust Bursary*, of the annual value of about £16, is awarded each year to a student-associate of the Society who has completed three years' apprenticeship in the city or county of Aberdeen, and has not previously studied at a school of pharmacy.

*The Ransome Research Fellowship*, of the value of £100 per annum and tenable for two years, was founded in 1917 to promote the investigation of crude drugs, and is awarded to a pharmaceutical chemist, who must not engage in unauthorised commercial work while holding the Fellowship.

*The Redwood Scholarship*, of the value of £100 per annum and tenable for two years, is awarded every fourth year (together with apparatus, etc.) to a pharmaceutical chemist to obtain instruction in the Society's research laboratory. Until further notice, the scholarships will be awarded in accordance with the following regulations:—

- There shall be one examination for all the scholarships, which will be conducted by an examiner or examiners appointed by the Council of the Society, and the awards made by the Council on the recommendation of such examiner or examiners.

- The examination will be held on the third Tuesday in June of each year in Aberdeen, Birmingham, Cardiff, Edinburgh, Exeter, Leeds, London, Manchester and Newcastle, or such other centres as may from time to time be selected by the Council of the Society.

- At the time of giving notice of their intention to enter for the examination, competitors must be student-associates of the Society.

- No person shall be awarded more than one scholarship, but a person may compete for all the scholarships for which he is eligible at the same examination. Should he gain marks entitling him to the award of more than one scholarship he will be permitted to select the scholarship he wishes to have awarded to him.

- On the day on which the examination is held, competitors must be not less than nineteen nor more than twenty-two years of age.

- Competitors must give notice to the registrar in London on or before June 1 in the year in which the examination is to take place. The notice must be accompanied by a registrar's certificate of birth, an employer's testimonial, and a declaration as to practical training. At the same time the competitor must state (a) the language subject in which he wishes to be examined, and (b) the examination centre at which he wishes to attend.

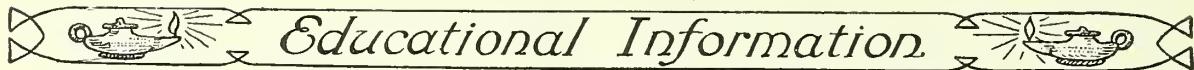
THE PHARMACEUTICAL SOCIETY OF IRELAND.—The Council awards annually a gold and a silver medal to pharmaceutical chemists who have during the year passed the Licence examination on a first attempt and obtained the following standard of marks: For the gold medal, not less than 240 marks out of 300, and 65 in each of the three subjects; for the silver medal, 230 marks out of 300, and 60 in each of the three subjects.

THE CHEMISTS' AND DRUGGISTS' SOCIETY OF IRELAND.—The Haslett Gold Medal is awarded annually to the student who takes the first place at the Pharmaceutical Society of Ireland's Registered Druggist examination.

THE FAIRCHILD SCHOLARSHIP, which was founded in 1904 by Fairchild Brothers & Foster. The object of the scholarship is to encourage study during apprenticeship. The examination is designed not as a test for completed studies, but to see how far the student has used his time and powers of observation during apprenticeship so as to fit himself or herself to appreciate fully the subsequent course of study. The value is £60, and, in addition, there are prizes of £5 for the best student in England, Scotland, Wales and Ireland, apart from the scholarship. The examinations take place during June, and entries should be made on, or before, June 1. The examinations are held in London, Manchester, Edinburgh, Cardiff, Dublin and Belfast, the amount over 5s. railway fare being refunded if application is made to the Secretary. The age limit is not less than twenty years on July 1, 1931, or over twenty-two on January 1, 1931, and all competitors must be registered students or apprentices of pharmacy. The successful student must commence his studies within the year after winning the scholarship. The subjects are: Chemistry; physics; botany; practical pharmacy and prescription reading; business knowledge. The trustees are Mr. Peter Boa, Edinburgh; Mr. Albert Hagon, Cardiff; Mr. William Kirkby, Manchester; Mr. A. J. Phillips, London. All communications should be addressed to the Secretary to the Trustees, Mr. Herbert Skinner, Ph.C., Albert Chambers, 64-65 Holborn Viaduct, London, E.C.1.

THE KINNIMONT PRIZE.—Instituted in 1894 by the late Alexander Kinnimont, Ph.C., for pharmacy students in Glasgow and the West of Scotland. The prize, a scholarship of the value of £10 10s., tenable at the Royal Technical College, Glasgow, is awarded on the result of a written examination in chemistry, botany and physics of three hours' duration, held in Glasgow in September of each year.

"CORNER FOR STUDENTS" PRIZES.—THE CHEMIST AND DRUGGIST conducts a monthly competition in qualitative chemical analysis. The next series of competitions, which commences in October, will give students of chemistry excellent practice in manipulation and deduction.



# Educational Information

## Medicine

The reports on public health and allied subjects issued in close succession by the Ministry of Health are one sign of active interest in research among the medical profession; another sign is the continuous stream of monographs appearing on all kinds of pathological and a few other topics in the medical Press. Again, the proceedings of the General Medical Council and of the British Medical Association afford evidence of expert scrutiny of the curriculum on the one hand and close watch on the social and financial standing of practitioners on the other. The result of all these factors is to strengthen the already desirable position that doctors occupy in many spheres—for instance, the Army, the Navy, hospital posts, inspectorships, the Dominion and Colonial Services, and the work of a consultant or a general practitioner.

The General Medical Council, the examining, registering and disciplinary body set up by the Medical Act, 1858, has among its functions the right to demand information from colleges and other bodies as to courses of study and examinations. Candidates for the profession are required to possess, at the outset, a general education of the standard needed for matriculation in arts or science at a British university, together with evidence of having passed an approved examination in elementary physics and elementary chemistry and of having commenced medical study, and, after registration as medical students, to take a course of study and training, extending to at least five years, at a recognised institution. There are two types of medical qualification, the degrees bestowed by the universities and the diplomas given by such bodies as the Royal Colleges of Physicians and Surgeons.

### Preliminary Examinations

The education committee of the General Medical Council issues a list of examining bodies, the examinations of which in general education fulfil the conditions laid down by the Council as to admission as a medical student (see "Registration as Medical Students"). These examinations include (1) the final arts or science degree examination of any university of the United Kingdom or of the British Dominions; (2) the matriculation examination of any university in Great Britain or of certain examining bodies in Ireland; (3) a number of school and other examinations accepted by approved universities as equivalent to their respective matriculation examinations. Any preliminary examination must include: (1) English; (2) elementary mathematics; (3) a language, from a selected list, other than English; (4) a second language from the list or one of the following subjects: higher mathematics, history, geography, chemistry, physics, zoology, botany, biology, geology. A Joint Matriculation Board (Secretary, 315 Oxford Road, Manchester) governs the Matriculation examinations of the Universities of Manchester, Liverpool, Leeds, Birmingham and Sheffield. The College of Preceptors, Bloomsbury Square, London, W.C.1, holds in March and September of every year, at various centres in Great Britain, a Professional Preliminary examination for certificates recognised by the General Medical Council and other bodies. The fee is 25s., plus a local fee of from 5s. to 15s. A similar examination is held (fee, 21s.) by the Educational Institute of Scotland, 47 Moray Place, Edinburgh, in February, May, August and November (calendar, 7d.; examination papers, 1s.). The examination centres are Edinburgh, Glasgow, London, Liverpool and Dublin. The subjects which are compulsory and those which are optional differ to some extent in the requirements of the various universities and other qualifying bodies; consequently, the candidate must either matriculate at the university at which he or she intends to study or ascertain that the Preliminary examination certificate held is one that will be accepted.

### Registration as Medical Students

The way of entrance to the medical profession is laid down in "Regulations of the General Medical Council in Regard to the Registration of Medical and Dental Students" (1s., post free, from the Registrar, 44 Hallam Street, London, W.1).

The following is a summary of the regulations:—

(1) Before registration as a student every candidate shall produce evidence that he has attained the age of seventeen years.

(2) The minimum standard of general education required will be that of University matriculation or entrance examination in arts or pure science.

(3) Before registration as a student every applicant shall be required to have passed an approved examination in general education (see "2"), and, in addition, an examination in elementary physics and elementary chemistry conducted or recognised by one of the licensing bodies.

(4) A student who has diligently attended an approved course of instruction in elementary biology at a secondary school or other teaching institution recognised by a licensing body may be admitted to the Professional examination in elementary biology, if that body sees fit, immediately after his registration as a student.

The commencement of the course of professional study recognised by any of the licensing bodies should not be reckoned as dating earlier than fifteen days before the date of registration. The Registrars to whom, according to the division of the United Kingdom in which the student is training, application must be made for registration are:—

The Registrar of the General Medical Council, 44 Hallam Street, Portland Place, London, W.1.

The Registrar of the Scottish Branch Council, 12 Queen Street, Edinburgh.

The Registrar of the Irish Branch Council, 35 Dawson Street, Dublin.

The Registration Office for the Irish Free State is Room 123, Custom House, Dublin.

The General Medical Council enjoins that in every course of professional study and examination, which must occupy not less than five academic years, the following subjects shall be comprised:—

(1) *Elements of General Biology*, including practical work and an introduction to the study of embryology; (2) *Chemistry, Physics, and Biology* in their application to medicine; (3) *Human Anatomy and Human Physiology*, including dissection, histology, elements of human embryology, biochemistry and biophysics; (4) *Elementary Bacteriology*; (5) *Pathology*; (6) *Pharmacology and Materia Medica*, including pharmacological chemistry; (7) *Forensic Medicine, Hygiene, and Public Health*; (8) *Medicine*, including applied anatomy and physiology, clinical pathology, and therapeutics; (9) *Surgery*, including applied anatomy and physiology, and clinical pathology; (10) *Midwifery and Diseases of Women*.

A few bodies allow medical studies to be commenced at approved teaching institutions other than medical schools, and this principle is extended to graduates in arts or science at approved universities. No general exemption of this kind is given to registered chemists and druggists except as regards training in practical pharmacy. The Preliminary examination must have been of the standard given in the regulations, but the colleges and universities consider applications for exemption from any part of the medical examinations when such subjects as chemistry and biology have been taken at recognised institutions. Each examining body issues regulations as to the studies required, and the schools of medicine arrange their courses in conformance with such requirements.

### University Degrees

In the following paragraphs we indicate concisely the conditions framed by the universities of the places named for degrees in medicine and surgery (M.B., Ch.B., or the equivalent degrees). For other and higher degrees further courses of study and fees are requisite.

## Educational Information

**ABERDEEN.**—The two degrees are conferred together, and cannot be taken separately. The curriculum extends over a period of not less than five years, during which the candidate must attend the prescribed courses of instruction. The fee for the two degrees is £34 13s., payable in four instalments. Bursaries, scholarships and fellowships to the annual value of £1,200 are obtainable. Further information may be obtained from the Secretary, or from the University Press.

**BELFAST.**—Three academic years at least, out of the five prescribed for the curriculum, must be passed in the University. The examination and graduation fees amount to £23 2s. New regulations for matriculation come into force next year. The Dean of the Faculty of Medicine is Professor W. J. Wilson.

**BIRMINGHAM.**—The course extends over five years, and there are five examinations, the fees for which amount to £20. Several scholarships are available. As a rule, the first four years of the course must be spent in the University, the minimum being three years. Dean of the Medical Faculty, Professor J. C. Brash, M.D., University Medical Buildings, Edmund Street.

**BRISTOL.**—There are three examinations, the total fees for qualifying (including graduation fee) amounting to about £29. The curriculum occupies six years, three of which must have been passed in Bristol. Particulars of scholarships and prizes are given in the University (Faculty of Medicine) prospectus. Secretary, Miss Winifred Shapland.

**CAMBRIDGE.**—Students who have not graduated in Arts are required to pass the Previous examination or its equivalent before proceeding to the three examinations for the M.B. degree. The respective fees for these three examinations are £5 5s., £6 6s., and £10 10s. The degree fees amount to £8. A thesis must be composed by each candidate, and must be publicly read (or such portion of it as the Regius Professor shall direct) by the author. There is no separate examination for the B.Chr. degree. The Registrar is Mr. E. Harrison, M.A.

**DUBLIN.**—Candidates for the degrees in medicine, surgery and obstetric science must be of B.A. standing and must have completed five years in medical studies. The degree fees amount to £17. Dean of the Faculty of Physic, Dr. A. F. Dixon.

**DURHAM.**—There are four examinations for the M.B., B.S. degrees, and the course of study extends over five years, one of which must be spent at the University's College of Medicine. The fees for matriculation and examination amount to £35 3s. Numerous scholarships and prizes are offered. Full information may be obtained from the Dean of the College, University of Durham College of Medicine, Newcastle-upon-Tyne.

**EDINBURGH.**—The course for the degree of M.B. and Ch.B., which are not conferred separately, extends over five years. Candidates must attend for not less than three years at a hospital. There are four examinations, the fees amounting to £34 13s. Several scholarships, bursaries and prizes are offered for competition. Dean of the Faculty of Medicine, Professor Lorrain Smith, M.D.

**GLASGOW.**—There are four examinations. The period of study prescribed is five years, with specific regulations as to the lengths of the various courses of instruction. The fees (after registration) for the degrees of

M.B., Ch.B., amount to £34 13s. Several bursaries and prizes are open to competition. The Dean is Professor Currie, M.D.

**IRELAND.**—The National University of Ireland confers the M.B., B.Ch., and B.A.O. degrees (simultaneously) after passing four examinations during a minimum period of five years' study. Particulars may be obtained from the Registrar, National University, Dublin.

**LEEDS.**—There are three examinations, and the course of study extends over five years. Attendance at approved courses of instruction is obligatory. The matriculation, examination, and conferment fees amount to £35. Dean of the Faculty of Medicine, Professor J. K. Jamieson, M.B., C.M.

**LIVERPOOL.**—The curriculum extends over six years, two of which must be passed in the University. There are three examinations, with a fee of £5 each, and an admission-fee of £5. Several fellowships, scholarships and prizes are available. Dean of the Faculty, Professor W. J. Dilling.

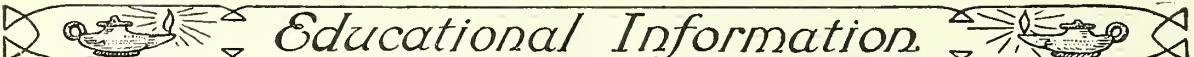
**LONDON.**—The normal course of study extends over five and a half years, and there are three examinations, the second of which is divided into two parts. The examination fees for the double degree amount to £31 10s. A large number of institutions in the United Kingdom and the Colonies is recognised for teaching and giving certificates, and various concessions are granted in respect of examinations already passed at recognised institutions. There are several studentships and research grants available. Internal and external students should apply respectively to the Academic Registrar and the External Registrar, University of London, South Kensington, S.W.7.

**MANCHESTER.**—Four examinations for the two degrees, after study extending over not less than five years, must be passed. Two of these years must be spent in the University. Several scholarships, exhibitions and other competitive prizes are offered to students. Examination and conferment fees amount to £42. Full information is obtainable from Professor Raper, Dean of the Medical School (as to classes) and the Registrar (as to examinations).

**OXFORD.**—The regulations stipulate that candidates must hold an Oxford Arts degree as a prerequisite. Two examinations are held (after a preliminary examination in natural science) for the degree of B.M.; the degree of B.Ch. is granted with that of B.M. after passing the second examination. The minimum time in which the degrees can be obtained is about six years from the commencement of "residence." The Dean of the School of Medicine is Dr. E. W. Ainley Walker, Department of Medicine, University Museum; and the examination statutes are published by the Oxford University Press.

**ST. ANDREWS.**—The course for the M.B., Ch.B. degrees (which are not separable) extends over at least five years, and the prescribed order of studies must be followed. There are four examinations, the fees amounting to £34 13s. Dean of the Faculty, Professor James Charteris, M.D., Medical School, Dundee; Secretary of the University, Mr. Andrew Bennett.

**SHEFFIELD.**—There are four examinations for the M.B., Ch.B. degrees, the curriculum occupying six academic years. Candidates who are referred in the Final examination (Part II) must produce evidence of



## Educational Information

having received subsequent instruction satisfactory to the Faculty before entering for re-examination. Several scholarships are available. Dean of the Faculty, Professor J. S. C. Douglas; Registrar of the University, Mr. W. M. Gibbons, M.A.

**WALES.**—The course of study is divided into two parts, each extending over three academic years. A degree, in science or arts, of some approved university, is necessary before the medical degrees can be conferred. Examination fees are £20 10s. The constituent colleges are Aberystwyth, Bangor, Cardiff and Swansea. Dean of the Faculty, Mr. A. W. Sheen, M.S.; Secretary, Mr. D. J. A. Brown, University College, Cathays Park, Cardiff.

### Medical and Surgical Diplomas

M.R.C.S.ENG. AND L.R.C.P.LOND.

The Royal College of Physicians of London and the Royal College of Surgeons of England (known as "the Conjoint Board") grant a joint diploma (the "Double Qual.") for registration as a general medical practitioner. There are two professional examinations (in addition to the Preliminary examination and Pre-medical examination) during the five years' curriculum subsequent to registration as a medical student. The Pre-medical examination of the Board now includes biology as well as chemistry and physics (total fees, £4 4s.).

The subjects of the *First Professional Examination* are:—Section I, (a) Anatomy, including histology and embryology; (b) Physiology, including biochemistry. Section II, Pharmacology and *materia medica*. Candidates may present themselves for the two sections together or separately, but they must take Parts (a) and (b) of Section I together until they have passed in one or both parts. Candidates will not be allowed to pass in one part unless they obtain at the same time at least half the number of marks required to pass in the other part. Section II may be passed at any time before the candidate enters for the Final examination. Before admission to the First examination, candidates must produce evidence of having attended:—For Section I: (1) Courses of instruction in anatomy, including embryology, during five terms, during which they must have dissected the whole body; (2) courses of instruction in physiology, including biochemistry and biophysics, during five terms; (3) a course of instruction in histology. For Section II: Courses of instruction in pharmacology and *materia medica*. The fee for the whole examination is £10 10s.

The subjects of the *Final Professional Examination* are:—Section I, Pathology (including morbid anatomy, morbid histology, and clinical pathology) and bacteriology. Section II, Part I, Medicine, including medical anatomy, forensic medicine and public health. Part II, Surgery, including surgical anatomy and the use of surgical appliances. Part III, Midwifery and gynaecology. They will be required to produce evidence of having completed courses of study in pathology (including morbid anatomy and histology), *post-mortem* work, clinical pathology, bacteriology, clinical medicine, practical surgery, forensic medicine, mental diseases, public health, anaesthetics, midwifery and gynaecology, applied anatomy and applied physiology, and operative surgery. Certificates of having received certain specified hospital instruction must also be presented. Re-examination in referred subjects cannot take place within three months of the date of rejection. The fees for this examination amount to £31 10s.

Special regulations are provided for cases in which students have passed examinations in certain subjects elsewhere. Synopses of the examination can be obtained from Mr. H. H. Rew, Secretary of the Examining Board, 8-11 Queen Square, London, W.C.1.

### SCOTTISH TRIPLE QUALIFICATION

The Royal Colleges of Physicians and Surgeons of Edinburgh, with the Royal Faculty of Physicians and Surgeons, Glasgow, grant three diplomas ("Triple Qual.") jointly entitling the holder to registration as a general medical practitioner. The four examinations are held in Edinburgh, Glasgow, or both cities. The course of study must occupy not less than five years, and the examination fees amount to £30. Full

particulars may be obtained from Mr. D. Thomson, 49 George Square, Edinburgh, or Mr. W. Hurst, 242 St. Vincent Street, Glasgow.

### IRISH QUALIFICATION

Particulars of the examination of the Irish Conjoint Board for the licences in medicine, surgery and midwifery may be obtained on application to Mr. Alfred Miller, Royal College of Surgeons, St. Stephen's Green, Dublin. Examination fees for the three examinations amount to £40.

### LONDON APOTHECARIES' DIPLOMA

The Society of Apothecaries of London grants a diploma (L.M.S.S.A.) in medicine, surgery and midwifery. After the Pre-medical examination (fee, £5 5s.) there are two examinations, Primary and Final, and the course of study extends over five years. A written and oral examination in biology is now requisite. The fee for the Primary examination is £5 5s.; for the Final examination a fee of £21 is payable (£15 15s. if a fee of £5 5s. has been paid for the Primary examination). Application may be made to Mr. Frank Haydon, L.R.C.P.Lond., Secretary, Society of Apothecaries of London, Water Lane, E.C.4.

### DUBLIN APOTHECARIES' DIPLOMA

The Apothecaries' Hall of Ireland grants a diploma (L.A.H.) to candidates who pass the requisite examinations. There are two examinations, with a fee of £21 for each, and a diploma fee of £5 5s. Particulars may be obtained from the Registrar of the Apothecaries' Hall, 95 Merrion Square.

### Medical Schools

The following are the principal medical schools in the United Kingdom:—

#### LONDON

The following medical schools are constituents of the London University:—

*Charing Cross Hospital Medical School*, Chandos Street, W.C.2.—The entrance fee varies according to the examinations already passed. Annual fee, £39 18s. Several scholarships and prizes are available. Dean, Dr. F. H. Young.

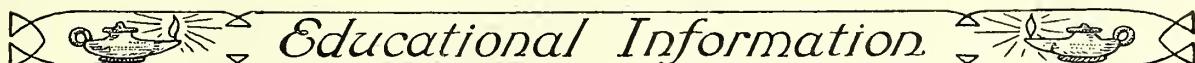
*Guy's Hospital Medical School*, London Bridge, S.E.1.—The fees for a five-years' course amount to approximately £245. Several scholarships are obtainable by students, and a residential college (facing the hospital) is open for those who desire such accommodation. Communications should be addressed to the Dean of the School.

*King's College, Faculty of Medical Science*, Strand, W.C.2.—Students are prepared for the first two medical examinations of the University of London or other universities, or the first two of the Conjoint Board. Fees: First M.B. or first conjoint course, £36 15s. per annum; courses for second examination, £42 per annum. Scholarships and prizes exceeding £600 in value are awarded annually. Dean of the Faculty, Professor D. M. Blair, M.B.

*King's College Hospital Medical School*, Denmark Hill, S.E.5.—Composition-fee for the University of London course or the Conjoint Board course, £210; this fee includes three years' tuition at King's College and three years at the Hospital. Arrangements may also be made for payment by instalments. Scholarships of a total value of £1,500 are offered annually. Dean, Dr. H. Willoughby Lyle. The School calendar, giving particulars as to fees, may be obtained on application to the Secretary, Mr. S. C. Ranner, M.A.

*London Hospital Medical College*, Turner Street, E.I.—Entrance fee, £21; annual fee, £42. Scholarships open to competition, and numerous prizes in various subjects. Dean, Professor W. Wright, D.Sc., M.B.; Secretary, Mr. E. J. Burdon.

*London (Royal Free Hospital) School of Medicine for Women*, Hunter Street, W.C.1.—The fee is £50 per annum throughout the course of study—M.B., B.S., or the Conjoint Board qualification. Dean, Lady



## Educational Information

**Barrett, C.H., C.B.E., M.D., M.S.** A list of scholarships (total annual value, £1,350) and other particulars may be obtained from the Warden and Secretary.

**Middlesex Hospital**, Union Street, W.1.—The school, which includes the Bland-Sutton Institute of Pathology, the Courtauld Institute of Biochemistry, and the cancer-research laboratories, is fully equipped for teaching the entire medical curriculum; special courses are given in the higher degrees and diplomas, particularly the Primary F.R.C.S.Eng. and D.P.H. Special attention is given to the co-ordination of the work in the laboratories with that in the wards. Entrance-fee, £25; five annual instalments of £45; thereafter at the rate of £23 per annum until qualified. Two university scholarships, value £90 and £60 respectively, and two entrance scholarships, value £100 each, are awarded annually. Other scholarships and prizes to the total value of £1,000 are also awarded each year. A prospectus may be obtained, on application, from the Dean of the School, Dr. T. Izod Bennett.

**St. Bartholomew's Hospital Medical College**, Smithfield, E.C.1.—Composition-fee, £231 (or five annual instalments of £50 8s. each). The total value of the scholarships and prizes awarded annually is over £1,200. Dean, Dr. T. W. Shore.

**St. George's Hospital**, Hyde Park Corner, S.W.1.—Composition-fee (first year), £36 15s.; (second to fifth years), £42 each. Courses in preliminary and intermediate subjects are taken at King's College. Entrance-scholarships are awarded annually, and there are several exhibitions and prizes. Dean, Dr. A. Feiling.

**St. Mary's Hospital Medical School**, Cambridge Place, W.2.—Composition-fee for the curriculum (time limit six years), £205—if paid in four instalments, £215. Entrance-scholarships, together with several studentships and prizes, are awarded annually. Dean, Dr. C. M. Wilson; Secretary, Mr. B. E. Matthews, B.A.

**St. Thomas's Hospital Medical School**, Albert Embankment, S.E.1.—There are five entrance-scholarships; other prizes are open for competition throughout the student's career. Annual fee (payable at the beginning of each year), £50. Secretary, Dr. R. J. C. Thompson.

**University College Hospital Medical School**, University Street, W.C.1.—The composition-fee for the final degree or Conjoint Board examination course amounts to £123 7s. 6d. Several scholarships and exhibitions are offered by competition. Dean, Dr. A. M. H. Gray; Secretary, Mr. Richard Sloley.

**Westminster Hospital Medical School**, 12 Caxton Street, S.W.1.—Entrance-fee, £10 10s.; annual composition-fee (payable in advance), £40. Scholarships and prizes are awarded over a considerable period of the curriculum. Preliminary and intermediate studies are taken at King's College. Dean, Dr. A. S. Woodward; Secretary, Major J. Burke.

### OUTSIDE LONDON

**ABERDEEN**.—*University Faculty of Medicine*.—The total cost of obtaining the M.B., Ch.B. degrees is estimated at £240, including hospital fees, class fees, and degree fees. Clinical study is available at the Royal Infirmary and other local institutions. Applicants should communicate with the Secretary.

**BELFAST**.—*Queen's University of Belfast*.—Students are prepared, during a five-years' course, for the degrees of M.B., B.Ch., and B.A.O. The combined class and laboratory fee for four years is £105, payable in four instalments. Particulars may be obtained on application to the Secretary to the General Board of Studies.

**BIRMINGHAM**.—*University Faculty of Medicine*.—The minimum cost of obtaining the double degree is estimated at £203. Full information is obtainable at the Dean's Office, Medical Buildings, Edmund Street.

**BRISTOL**.—*University Faculty of Medicine*.—The approximate cost of obtaining the conjoint degrees is £263, payable by six annual instalments. The Faculty also prepares students for the diploma examinations of other licensing bodies; such students are not required to matriculate. Dean, Professor E. Fawcett, M.D.; Secretary, Miss Winifred Shapland.

**CAMBRIDGE**.—Clinical lectures and practical instruction are given to members of the University at Addenbrooke's Hospital. Apply to Dr. L. B. Cole, Addenbrooke's Hospital, for particulars.

**CARDIFF**.—*The University College of South Wales and Monmouthshire* is a constituent college of the University of Wales. Composition-fees for six years amount to £200. Application for particulars may be made by letter to the Dean of the Faculty of Medicine.

**CORK**.—*University College* is a constituent college of the National University of Ireland. The calendar (price 6d.) is obtainable from the Secretary.

**DUBLIN**.—*Royal College of Surgeons' Schools of Surgery* are attached to the Royal College of Surgeons. A syllabus may be obtained from Mr. Alfred Miller, Registrar, Royal College of Surgeons, Stephen's Green.

*School of Physic, Trinity College*.—The cost of qualifying amounts to £146 3s. Registrar, Mr. G. L. Allen.

*University College*.—A constituent college of the National University of Ireland.

**EDINBURGH**.—*University Faculty of Medicine*.—The minimum cost of qualification is estimated at £250. Dean, Professor Lorrain Smith, M.D.

*School of Medicine of the Royal Colleges*.—The courses of study are suited to University and other qualifications. The minimum cost of education for the triple qualification, including examination fees, is about £180, payable by instalments. Scholarships and bursaries are available. Communications should be addressed to the Dean, Surgeons' Hall, Nicolson Street.

**GALWAY**.—*University College*.—A constituent college of the National University of Ireland.

**GLASGOW**.—*The University Faculty of Medicine*.—The division of studies is similar to that adopted at Edinburgh, and the fees are about equal. Dean, Professor Currie; Assistant Registrar, Mr. R. Brough.

*The Anderson College of Medicine*, Dumbarton Road, W.—Students are prepared for University and other qualifications. A copy of the College calendar will be sent on receipt of a postcard addressed to the Secretary of the Medical Faculty at the College.

**ST. MUNGO'S COLLEGE**, 86 Castle Street.—The total fees payable for preparation for a Scottish or English qualification amount to rather more than £100. Further information may be obtained from the Secretary.

**LEEDS**.—*University Faculty of Medicine*.—The total cost of education for the M.B. degree is estimated at £324. Dean of the Faculty, Professor J. K. Jamieson.

**LIVERPOOL**.—*University Faculty of Medicine*.—The composition and other fees are estimated at £347. Dean, Professor W. J. Dilling.

**MANCHESTER**.—*University Faculty of Medicine*.—The fees for the training and examination for the M.B., Ch.B. degrees are estimated at £288 3s. Courses are also available for other degrees and diplomas. Particulars will be found in the calendar of the University, or may be obtained (price 3d.) on application from the Registrar.

**NEWCASTLE-UPON-TYNE**.—*University of Durham College of Medicine*, Northumberland Road.—The composition-fee for a complete course of lectures and laboratory work at the College is £140, payable in advance. For particulars of the courses of instruction, apply to the Dean of the College.

**OXFORD**.—Courses of practical instruction are given, by arrangement with the University, at Radcliffe Infirmary. Apply to the Dean of the School of Medicine (Dr. E. W. Ainley Walker), University Museum, for particulars as to the curriculum.

**ST. ANDREWS**.—*University Faculty of Medicine*.—The inclusive fee for five-years' University and clinical courses for the M.B., Ch.B. degrees is £182, payable in instalments. Advisers of Studies, Professor J. Charteris, M.D., Dundee, and Professor D. Waterston, M.D., Bute Medical Buildings, St. Andrews.

**SHEFFIELD**.—*University Faculty of Medicine*.—A five-years' course is provided for. The composition-fees are estimated at £215, payable in six instalments. Dean, Professor J. S. C. Douglas.

**SWANSEA**.—*University College*.—A constituent college of the University of Wales. Registrar, Mr. Edwin Drew.

## Educational Information

### Dentistry

The address of the chairman of the Dental Board of the United Kingdom, delivered at the May session of the Board, made it clear that dentistry is by no means an overcrowded profession; on the contrary, the maintenance of an adequate number of dental practitioners is regarded as potentially difficult. Dentists, like medical men, are subject to the control of the General Medical Council, though the details of administrative work devolve chiefly on the Board. An official memorandum (price 1s.) is obtainable showing the approximate cost of qualifying at a university or elsewhere. The choice between a degree and a diploma in dentistry is not, perhaps, of much practical importance, as the courses of training are similar in all cases. Many dental students find it advantageous to combine a medical course with their ordinary curriculum, especially if they intend to purchase or form a high-class practice. The campaign of the Dental Board in educating the public in the care of the teeth is calculated to enhance the position of the average dentist.

#### Dental Training

The registration of dental students is subject to the following conditions: The candidate must (1) be not less than seventeen years of age, (2) have passed a recognised Preliminary examination (see "Preliminary Examination" under "Medicine") and a pre-medical examination, and (3) have commenced professional study, by pupilage or otherwise. Candidates for a diploma in dental surgery should produce certificates of having been engaged during four years in professional study, and of having received two years' instruction in mechanical dentistry. (A syllabus for students in dental mechanics is issued by the British Dental Association, 23 Russell Square, London, W.C.1.) No portion of practical instruction which is taken prior to the date of registration may be reckoned as a portion of the four years of professional study. It is recommended that instruction in dental mechanics be taken at a recognised dental hospital and school. If any part of such instruction is taken by the candidate as a pupil with a registered dentist, the time required to be devoted to it shall be at least twice the time required for the corresponding instruction taken at a dental school. Application for registration should be made on the appropriate form to the Registrar of the General Medical Council, 44 Hallam Street, London, W.1. No fee is charged for registration as a student. Examination for a degree or licence in dentistry or dental surgery includes the following subjects:—

(1) Chemistry, Physics, and Biology, in their bearing on medicine and dentistry; (2) Human Anatomy and Physiology; (3) General Pathology, including bacteriology; (4) Medicine and Surgery; (5) Dental Anatomy and Physiology, Dental Pathology, Dental Surgery (including orthodontics), Dental Materia Medica and Therapeutics, and Dental Mechanics and Dental Metallurgy; (6) Practical Dental Surgery; (7) Practical Dental Mechanics and Metallurgy; (8) Anaesthetics, general and local, employed in dental practice.

Women are not admitted, at present, as students to certain of the dental schools and general hospitals. The L.D.S. of the Royal College of Surgeons of England is usually more valued than a similar qualification obtained elsewhere. The curriculum of the College (the Preliminary and Pre-registration examinations having been passed) is as follows:—

The First Professional Examination consists of (1) dental mechanics, (2) dental metallurgy and the properties of dental materials, and (3) (a) general anatomy and physiology, (b) dental anatomy and physiology, and is held three times a year. Candidates may present themselves for the several parts of the First Professional examination together or separately, but before admission to any part of the examination they must produce evidence of having passed the required Preliminary examination in general education and the required Pre-medical examination or a certificate of

having been registered as a medical or dental student. Candidates for Part I must give twenty-one days' notice in writing, and forward certificates of having been engaged during a period of not less than two years in acquiring a practical familiarity with the details of dental mechanics and of having attended courses of lectures and practical work. They must also provide themselves with certain instruments. Similar regulations apply to Parts 2 and 3.

The Second Professional Examination consists of (1) general surgery and pathology, (2) dental surgery and pathology, and practical dental surgery. Four months must elapse between the first examination and Part 1 of this examination, and certificates of attendance at certain courses must be produced. Before admission to Part 2, candidates must be certified as having attended studies at a recognised institution for two years.

The fees for the pre-medical and diploma examinations amount to £24 3s., payable by instalments. Inquiries should be addressed to the Director of Examinations, Examination Hall, Queen Square, London, W.C.1. Similar conditions apply to the qualifications of the following colleges:—

**ROYAL COLLEGE OF SURGEONS, EDINBURGH.**—The course of study must occupy at least four years, and not less than three years must be spent at a recognised school. The subjects are taken in two examinations. The examination fees amount to £15 15s. Information may be obtained from Mr. D. Thomson, Clerk to the College, 49 George Square.

**ROYAL FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.**—The general regulations are similar to those obtaining at Edinburgh. Candidates for the licence must be twenty-one years of age. The fees, including that for the Registration examination, amount to £19 19s. Particulars are obtainable from Mr. W. Hurst, Secretary of the Faculty, 242 St. Vincent Street.

**ROYAL COLLEGE OF SURGEONS IN IRELAND,** St. Stephen's Green, Dublin.—There are three examinations, with fees amounting (including diploma fee) to £21. The Registrar will furnish particulars on application.

#### University Degrees and Diplomas

**BELFAST.**—Five years' study is compulsory for students for the degree of B.D.S., and four years for candidates for the licence diploma. Examination and degree fees amount to £22 1s.; examination and diploma fees to £15 15s. Regulations and other information may be obtained from the Secretary to the General Board of Studies, Queen's University.

**BIRMINGHAM.**—The course for the diploma (L.D.S.) occupies four years, three of which must be University years; that for the B.D.S. degree covers five years. The B.D.S. degree cannot be conferred until twelve months after the diploma (or that of an approved body) has been obtained. Dean of the Dental Hospital, Great Charles Street, Mr. C. H. Howkins, M.R.C.S., L.D.S.

**BRISTOL.**—The curriculum for the degree extends over five years, with exemptions in favour of students holding an approved certificate in certain subjects. Study for the diploma must occupy four years. There are four examinations for the degree and four for the diploma. Secretary, Miss Winifred Shapland.

**DUBLIN.**—Four and a half years must be spent in study for the degree of bachelor in dental science, and the B.A. degree is prerequisite. The arts and dental courses may be taken separately or concurrently. Details may be obtained from the Registrar of the School of Physic, Trinity College, Dublin. (See also "Ireland.")

**DURHAM.**—The University grants a licence and two degrees in dental surgery. The diploma course occupies four years, and the primary degree course five years. Fees for examinations and licence, £18 10s. Fees for examinations and B.D.S. degree, £32 19s. Particulars may be obtained on application to the Dean of the College, University of Durham College of Medicine, Newcastle-upon-Tyne.

## Educational Information

**IRELAND.**—The course of study for the B.D.S. degree of the National University of Ireland extends over four years, and there are four examinations. Constituent colleges, Dublin, Cork and Galway. (See also "Dublin".)

**LEEDS.**—There are three examinations, in addition to a prescribed course of study extending over five years for the degree and four years for the diploma. The matriculation, examination and degree fees together amount to £25. Dental Warden, Mr. W. S. Thornburn, L.D.S.; Registrar of the University, Mr. A. E. Wheeler, M.A.

**LIVERPOOL.**—There are four examinations for the degree of B.D.S. or for the licence in dental surgery (L.D.S.). Four years' study is required for the licence and five years for the degree. Total degree fees, £24. Dean of the Medical Faculty, Dr. W. J. Dilling.

**LONDON.**—The degree of B.D.S. is conferred after matriculation and four subsequent examinations, the third of which is taken in two parts. The curriculum extends over five years, and the examination fees amount to £30 9s. Several schools and hospitals in London and the provinces are recognised for training purposes. For particulars apply to the External Registrar (if an external student), University of London, South Kensington, S.W.7.

**MANCHESTER.**—The examination fees for the B.D.S. (four examinations), together with the conferment fee, amount to £28 7s. The curriculum extends over five and a half years. The diploma course covers four years, with examination and conferment fees amounting to £23 2s. Inquiries regarding examinations should be addressed to the Registrar of the University.

**ST. ANDREW'S.**—The University grants a diploma in dental surgery (L.D.S.), after four years' study and four examinations. There is also obtainable a diploma in public dentistry, the first of its kind. For particulars apply to Dr. Graham Campbell, Adviser of Studies, Dental Hospital, Park Place, Dundee.

**SHEFFIELD.**—Five and a half years' study is required for the degree (B.D.S.), and four years' for the diploma. There are three examinations for each. Registrar of the University, Mr. W. M. Gibbons, M.A.

### Dental Instruction

The following are the chief schools in the United Kingdom for instruction in the science and practice of dentistry:—

#### LONDON

**Guy's Hospital Dental School**, London Bridge, S.E.1.—Practical training is provided in the hospital. The cost of a five-years' course for the B.D.S. degree of London University is £339 8s. Cost of L.D.S. training (four years), £280. The course can be extended so as to include medical studentship. The cost of the combined medical and dental course is approximately £440. Particulars may be obtained from Professor T. B. Johnston, M.B., Dean of the School.

**King's College Hospital Dental School**, Denmark Hill, S.E.5.—Professional instruction is given in association with King's College. Dental students may also attend other departments bearing on their work—e.g., those devoted to diseases of the throat. A London degree course costs £274, and a diploma course £256. Director

of Dental Studies, Mr. Alexander Livingston, M.B.; Secretary of the School, Mr. S. C. Ranner, M.A.

**London Hospital Dental School**, Turner Street, E.1.—Full course (including dental mechanics) for L.D.S. diploma, £240. Six-years' course for medical and dental qualifications, £360. Inquiries should be addressed to the Dean (Professor W. Wright, M.B.).

**London (Royal Free Hospital) School of Medicine for Women**, Hunter Street, W.C.1.—Courses of study arranged for the B.D.S. of London University and the L.D.S. of the Royal College of Surgeons. Pending the opening of the Eastman Dental Clinic the work is in conjunction with the Royal Dental Hospital, London. Dean, Lady Barrett, C.H., C.B.E., M.D., M.S.; Warden and Secretary, Miss L. M. Brooks.

**Royal Dental Hospital of London School of Dental Surgery**, Leicester Square, W.C.2.—The cost of the full course, including the fee at a general hospital and examination fees for the L.D.S. diploma, is estimated at £299. School fees for the London B.D.S. degree amount to £335 19s. Particulars of several scholarships are given in the calendar of the school. Dean, Mr. H. Stobie.

**St. Bartholomew's Hospital (Dental Department)**, Smithfield, E.C.1.—Courses of demonstrations are given. Composition-fee for general subjects, £126. Dean of the Medical College, Dr. T. W. Shore.

**St. Mary's Hospital**, Paddington, W.2.—A composition-fee of £73 10s. is charged for a two-years' course if paid on entry. Dean of the Medical School, Dr. C. M. Wilson; Secretary, Mr. B. E. Matthews, B.A.

**University College Hospital Dental School**, Great Portland Street, W.1.—Composition-fees: L.D.S. dental course, £246; six-years' course, comprising dental curriculum and curriculum for the M.R.C.S., L.R.C.P. diplomas, £416, payable by instalments. Sub-Dean, Mr. J. L. Dudley Buxton, L.M.S.S.A., L.D.S.

**Westminster Hospital**, 12 Caxton Street, S.W.1.—Fee for general surgical practice and lectures for the R.C.S. dental diploma (payable in advance), £70 (or two payments of £36 each). Dean of the Medical School, Dr. A. S. Woodward.

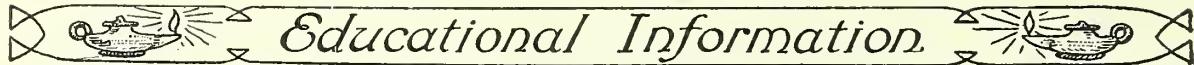
### OUTSIDE LONDON

**BELFAST.**—*Queen's University Faculty of Medicine*.—The combined class and laboratory fee is £23 12s. 6d. for the first year, and £26 5s. for the second year. Entrance-forms and other information may be obtained by applying to the Secretary to the General Board of Studies.

**BIRMINGHAM.**—*University School of Dentistry*.—The courses of instruction qualify also for the diplomas in dental surgery of all licensing bodies. Dean of the Dental Hospital, Great Charles Street, Mr. C. H. Howkins, M.R.C.S., L.D.S.

**BRISTOL.**—*University Faculty of Medicine (Dental Surgery)*.—The inclusive cost of the curriculum is estimated at £273 in the case of the degree, and £250 for diploma students. Communications should be addressed to the Secretary of the University.

**DUBLIN.**—*School of Dental Science, Trinity College*.—The total cost of obtaining the B.Dent.Sc. degree is given in the regulations as £331 15s. 6d., including arts and dental courses and examination and degree fees.



## Educational Information

For details apply to the Registrar of the School of Physic.

*Royal College of Surgeons Schools.*—The College grants a diploma in dental surgery. Cost of tuition, £21*1*; examination fees, £28 7*s.* Registrar, Mr. Alfred Miller.

*DUNDEE.—University of St. Andrews Dental School,* Park Place. Composition fees amount to £192 9*s.* The associated Dental Hospital has been reconstructed and enlarged. Adviser of Studies, Dr. Graham Campbell.

*EDINBURGH.—School of Medicine of the Royal Colleges.*—Communications should be addressed to Mr. John Orr, Dean of the School, Surgeon's Hall, Edinburgh.

*Incorporated Dental Hospital and School, 31 Chambers Street.*—General hospital attendance and clinical instruction are taken at the Royal Infirmary. The tuition and R.C.S. Edin. diploma fees amount to £133 8*s.* If the "triple qualification" (see "Medicine") is taken concurrently, the minimum cost is £212 16*s.* Dean of the School, Mr. W. Guy, F.R.C.S., L.D.S.; Secretary, Mr. G. M. Stuart, W.S., 20 York Place.

*GLASGOW.—Incorporated Dental Hospital and School, 158 Renfrew Street.* Estimated cost of curriculum and licence examinations, £219 19*s.*, plus £40 for instruments. Communications regarding the School should be addressed to the Dean, 15 Dalhousie Street.

*LEEDS.—Dental Department of the University.*—The cost of education for the degree of the University is given in the University Calendar as £396 10*s.* (£362 10*s.* for the diploma). Registrar of the University, Mr. A. E. Wheeler, M.A.

*LIVERPOOL.—University School of Dental Surgery.*—Candidates are prepared for the licence (L.D.S. Liverpool), the degree of B.D.S., and the higher degree of M.D.S. School fees for the B.D.S. (five years' training) amount to £250; those for the L.D.S. (four years' course) to £198. Director of Dental Education, Professor W. H. Gilmour, M.D.S.

*MANCHESTER.—Dental Department of the University.*—Students are prepared for the B.D.S. of the University, the diploma of the University, or the L.D.S. diploma of the R.C.S. Eng. Before registration shall be considered as complete every student entering on a degree course in the Faculty of Medicine will be required to produce to the dean of the Medical School his Matriculation certificate or certificate of exemption. In the case of a certificate of exemption, the certificate of the examination on which exemption was granted must be produced. The Dean of the Medical School of the University answers inquiries concerning classes.

*Dental Hospital of Manchester, Oxford Road, The University, and Manchester Royal Infirmary.*—The total fees payable to the University, the Hospital, and the Infirmary for courses of study, the library, and other fees, and the conferment of the degree or diploma are approximately as follows:—For the B.D.S. Manch., £312; for the L.D.S. Manch., £240; for the L.D.S., R.C.S. Eng., £251. The total fees for women are in each case £1 11*s.* 6*d.* less. The required outfit in each case (tools, instruments and books) costs about £60 in addition. Dean of the Dental Hospital, Mr. J. H. Mathews, L.D.S.

*NEWCASTLE-UPON-TYNE.—University of Durham College of Medicine (Dental Department).*—For particulars apply to the Dean of the College.

*Dental Hospital and School, Handyside's Buildings, Percy Street.*—Composition fee for dental lectures, demonstrations, and hospital practice, £63. Dean, Mr. J. Coltmann, L.D.S., 13 Ellison Place.

*ST. ANDREWS.*—(See "Dundee.")

*SHEFFIELD.—Dental Department, University Faculty of Medicine.*—Students are prepared for the degree (composition fees, £225, payable by instalments) or the diploma (composition fees, £200) of the University. Students who do not pay the composition fee are charged a registration fee annually. Registrar, Mr. W. M. Gibbons, M.A.

## Science

Chemical science may be divided into two sections—academic and industrial. Students who pursue the former course usually join the ranks of the teaching profession or take up research work. The scope of an academic career is enlarging, and although the pecuniary reward is still meagre some improvement in this respect is evident. The fields of the public analyst and the consulting chemist are limited, and a good practice can only be attained after years of waiting. Almost every branch of industry, however, requires the services of the industrial chemist, who, to be successful, must specialise. Close co-operation between research and practice is the ideal condition for development. In the case of "works" chemists good business ability is essential as an adjunct to sound technical knowledge. The best type should be able to combine the wide outlook of the works manager with the searching detail of the trained chemist and the constructional abilities of the engineer. Intensive study and hard work, together with the ability to look forward, and to think along original lines constitute the requirements for success in this branch. A training in pharmacy is a valuable asset to candidates for scientific degrees or technical diplomas. The majority of laboratory chemists in wholesale drug houses are pharmaceutical chemists with a supplementary qualification. Trained pharmacists find no great difficulty in passing technical examinations providing they are able to comply with the curriculum. Scholarships carrying free instruction and maintenance allowance are awarded annually as a result of science examinations held by the Board of Education. The Salters' Institute awards grants in aid to employees (over seventeen years old) in chemical works in or near London who desire to extend their education in chemical industry. Fellowships in research are offered annually. Applications for grants and fellowships should be sent in early in June to the Director, Salters' Institute of Industrial Chemistry, St. Swithin's Lane, London, E.C.4.

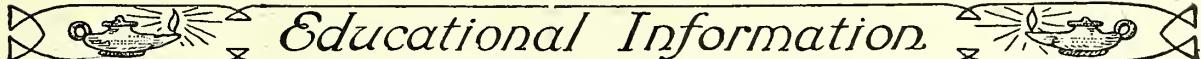
### Science Degrees

The regulations for a degree in science of London University require the student to pass three examinations, viz.:—(1) The Matriculation, (2) the Intermediate examination in science, and (3) the Final examination. Regulations are published for (a) internal students who register as such, and follow approved courses of instruction, and (b) external students who are examined without complying with a curriculum.

For particulars of Matriculation and External examinations apply to the External Registrar, University of London, South Kensington, S.W.7. Regulations for internal students are to be obtained from the Academic Registrar. The new statutes of the University require all external students to register.

The Intermediate examination in science commences on the first Monday in July. An additional Intermediate examination will be held, in London, in the more usual subjects only, commencing on the fourth Monday of November. A candidate must have passed the Matriculation examination not later than the preceding January or June, respectively, or otherwise have fulfilled the conditions of exemption. Candidates are required to pass in any four subjects selected by themselves out of the following: (1) Pure mathematics; (2) applied mathematics; (3) physics; (4) chemistry; (5) botany; (6) zoology; (7) geology; (8) the general principles of biology; (9) geography; (10) military studies; and (11) general physiology. At least one of the four subjects selected must be taken from among the first three. The fee is £6 6*s.*

The Final examination for B.Sc. takes place once a year, commencing on the third Monday prior to the first Monday in July. The B.Sc. degree is obtainable by passing the B.Sc. degree (general) examination in three subjects, or taking the B.Sc. degree (special), an examination of a specialised nature in a principal



## Educational Information

subject and a subsidiary subject. Successful candidates will be awarded First-class Honours, Second-class Honours, or a Pass Degree. An additional general examination is also held, commencing on the first Monday in November in the more ordinary subjects. Candidates must have passed the Intermediate at least a year previously, and the Matriculation at least three years previously. The fee is £6 6s. There are fifteen prescribed subjects to select from. The degrees Master of Science (M.Sc.), Doctor of Philosophy (Ph.D.), and Doctor of Science (D.Sc.) are also granted.

The English provincial, Irish, Scottish and Welsh universities confer the B.Sc. degree (*cum curriculo*), usually three years after matriculation, with examinations at the end of each session.

### Diplomas in Chemistry

The Institute of Chemistry of Great Britain and Ireland conducts examinations for the associateship of the Institute (A.I.C.). A certificate in Branch E (analysis of food and drugs, and water, etc.) is nowadays a necessity to obtain an appointment as a public analyst, and this branch is attractive to would-be pharmacist associates. The Regulations for the admission of students, associates and fellows are obtainable from the Registrar of the Institute, 30 Russell Square, London, W.C.1.

**STUDENTSHP.** — Candidates should register at the Institute (see above) as students at the commencement of their training. They must be British subjects, not less than sixteen years of age, and have passed an approved preliminary examination, and at the time of application be recommended by a teacher of chemistry at a recognised institution, or a Fellow of the Institute. In the last case an annual report of progress is required. Annual registration-fee, 10s.

**ASSOCIATESHIP.** — The Examination for Associateship (A.I.C.) consists of general theoretical chemistry (three papers) and practical chemistry, and occupies six days. Fee, £5 5s. It is open to: (i) Candidates who have completed four years' systematic day course of study in prescribed subjects at a recognised university or college; (ii) candidates who in lieu of first year above under (i) have taken two years' full-time study at a secondary school recognised by the Board of Education or had two years' experience in the laboratory of a Fellow of the Institute; (iii) candidates who in lieu of a fourth year have had one year's satisfactory experience under a Fellow or in an approved laboratory or works; (iv) candidates who have obtained a degree, including chemistry in the final examination, and have taken a further year's training in chemistry at a university or college or have had two other years' approved experience under a Fellow of the Institute or in an approved laboratory or works. (v) Applications from candidates (over 25 and with at least eight years in practice) who do not comply with the above requirements are also considered. The synopsis of the examination for the associateship is as follows:—

(a) *General Theoretical Chemistry.* — Candidates are required to show a thorough acquaintance with the fundamental laws and theories of chemistry, together with the properties and the methods of preparation of the elements and their compounds, both inorganic and organic, and with the application of chemistry in the arts and industries. Three papers, any of which may contain questions in inorganic, organic and physical chemistry, will be set.

(b) *Practical Chemistry.* — Exercises in qualitative analysis and quantitative analysis (both gravimetric and volumetric), including the analysis of alloys, ores, and minerals, and the determination of substances present in minute quantities, as impurities or otherwise, in commercial products. Preparation and purification of well-defined chemical substances. Organic analysis, including the recognition and determination of the elements and of typical groups and radicles, the identification of organic compounds. Gas analysis. The determination of physical constants and the use of physical instruments employed by chemists.

Candidates are required to satisfy the examiners as to their ability to translate technical literature from French and German into English with the aid of dictionaries.

Admission to the associateship without further examination may be granted to candidates who have obtained certain university degrees with first or second class honours in chemistry, or other diplomas recognised by the Council, with certain limitations as to courses of instruction and training.

**FELLOWSHIP.** — Admission to the Fellowship is open by examination to associates of three years' standing, who are not less than twenty-four years of age. Only in exceptional circumstances will the Council of the Institute consider applications from Associates for election to the Fellowship without examination; and such an Associate will be required to produce satisfactory evidence that (i) he has carried out original research; or (ii) he has devised processes or inventions of sufficient merit; or (iii) that he is possessed of knowledge and ability equivalent to having fulfilled the conditions contained in (i) and (ii).

The Fellowship examination is more specialised, there being various branches for which the candidates may enter. These are: (A) inorganic chemistry; (B) physical chemistry; (C) organic chemistry; (D) biochemistry; (E) the chemistry (including microscopy) of food and drugs and water; (F) agricultural chemistry.

### Science Schools

Courses of science instruction are available at the following institutions. These in general cover the subjects for London science degrees, courses for the National Certificates in Chemistry awarded by the Board of Education (as to which Rules No. 100, price 2d., is obtainable at the Stationery Office), and for the Institute of Chemistry examinations. The student should ascertain from the secretary of the institution whether the courses available cover the specific curricula for the examinations he intends to enter:—

**ABERDEEN.** — Degree courses in science. Appropriate cost of B.Sc. curriculum, £110. *Robert Gordon's Technical College* includes a well-equipped chemical department. Day classes, £6 per term. Evening classes, £1 10s. per session.

**ABERYSTWYTH.** — *University College of Wales.* — Three or four years' courses for degree in science, £20 per session (with practical work). Registration fee, £1 annually.

**BANGOR.** — *University College of North Wales.* — Composition fees for a science student amount to £24 1s. per session, including registration and apparatus fees.

**BARNESLEY.** — Day courses for B.Sc. of Sheffield University, and in fuel or glass technology, £10 10s. per session.

**BARROW-IN-FURNESS.** — *Technical College, Abbey Road.* — Day and evening classes in chemistry, physics and botany

### SCIENCE QUALIFICATIONS

(IN BRIEF)

#### LONDON B.Sc. DEGREE

1. Pass Matriculation.
2. Intermediate Examination in Four Science Subjects. Fee £6 6s.
3. Final Examination taken at least one year afterwards, and at least three years after Matriculation. Fee £6 6s.

#### A.I.C. and F.I.C. DIPLOMAS

1. Pass approved Preliminary Examination and register as Student while training. Annual Fee 10s.
2. After 4 years' day training, Examination for Associateship. Fee £5 5s.
3. After a further three years an Examination for Fellowship in a specified branch. Entrance fee £5 5s.

SCIENCE QUALIFICATIONS

## Educational Information

are available; fees per session, day classes £3 3s., evening classes from 7s. 6d.

BELFAST.—*Queen's University*.—Class fees in the University's science degree courses, from £1 1s. to £5 5s. each subject. *Municipal Technical Institute*.—For particulars of the science courses apply to the Principal.

BIRMINGHAM.—*University*.—Inclusive tuition fee for B.Sc. curriculum in pure science (including chemistry), £30 per session. *Central Technical College, Suffolk Street*.—Evening classes in chemistry, botany, and physics. *Aston Technical College*.—Day and evening courses in chemistry and physics; sessional fees, day £1 to £4, evening 10s. 6d.

BLACKBURN.—*Municipal Technical School*.—Day and evening classes are available in chemistry, physics and botany.

BOLTON.—*Municipal Technical College*.—Evening courses in chemistry; fees, 5s. to 10s. per session.

BOURNEMOUTH.—*Municipal College*.—Science courses for B.Sc. London degrees, £17 17s. per session (three terms, day classes). Evening classes in science and technology, 12s. 6d. to £1 per session of two terms.

BRADFORD.—*Technical College*.—Day and evening courses for University of London degree examinations.

BRIGHTON.—*Municipal Technical College*.—Day courses for University of London examinations, including the B. Pharm. degree; fees, £24 per session.

BRISTOL.—*University*.—Degree courses for B.Sc.; fee, £31 10s. per annum; M.Sc., Ph.D., and D.Sc. *Merchant Venturers' Technical College*.—Courses in chemistry, physics and botany.

BURNLEY.—Day and evening classes are held at the Municipal College in chemistry, physics and botany; fees, £1 11s. 6d. to £2 2s. per course.

BURY.—Evening chemistry courses (extending over three years) cost 10s. to 15s. per session.

CAMBRIDGE.—*University*.—For particulars apply to the Registrar.

CARDIFF.—*University College of South Wales and Monmouth and Technical College*.

CORK.—*University College*.—A constituent college of the National University of Ireland. Courses for B.Sc. degree.

DARLINGTON.—*Technical College*.—Evening courses in chemistry, physics and botany; 15s. to 25s.

DERBY.—*Technical College*.—Classes in chemistry, botany and physics.

DUBLIN.—*College of Science for Ireland*.—Similar to the Imperial College in South Kensington. Four years' course for A.R.C.Sc.I. in chemistry (pure and applied) and other branches; fee £15 to £20 per annum. *Trinity College*.—Apply to the Registrar. *University College* (National University of Ireland).

DUNDEE.—*University College*.—Day classes in botany, chemistry and physics. *Technical College*.—Central institution for eastern counties of Scotland for technical instruction.

EDINBURGH.—*University*.—Degree courses for B.Sc.; inclusive fees, pure science, £105; technical chemistry, £126. *Heriot-Watt College, Chambers Street*.—Day courses for the examinations of the Universities of Edinburgh and London, and of the Institute of Chemistry, including also courses extending over four years for the Diploma of the College in applied chemistry. Fees range from £20 to £31 10s. Evening classes are also held from October to March.

EXETER.—*University College*.—Degree course in science. Fees per annum:—Students residing within area: special and general degree £25, special (mathematics and economics) £21, intermediate £20; students not residing in area, £30. Preliminary scientific examination of the Pharmaceutical Society, £12 12s.

GALWAY.—*University College*.—A constituent college of the National University of Ireland.

GLASGOW.—*University*.—Degree courses in science.

HALIFAX.—*Municipal Technical College*.—Day courses in chemistry, physics and dyeing, £15 per session; evening classes, 15s. 6d. per subject.

HUDDERSFIELD.—*Technical College*.—Full-day and evening courses in chemistry, physics, botany and technological subjects, including manufacture of dyes. Courses for Institute of Chemistry's examinations. Sessional fees: Day, £12 12s. to £21; evening from 10s. 6d. according to requirements.

HULL.—*Municipal Technical College, Park Street*.—Day, B.Sc. (Lond.) course, £2 2s. to £10 per term; special day courses for pharmacists and dispensers, £1 1s. per term.

LANCASHIRE.—*The Story Institute Technical College*.—Evening or day classes in applied science; fees, 7s. 6d. to 12s. 6d. per session.

LEEDS.—*University*.—Degree courses in science: composition-fee, £33 per session.

LIVERPOOL.—*University*.—Composition-fees for degree courses (three subjects and practical work) at £40 a session.

### LONDON

*Imperial College of Science and Technology*, South Kensington, S.W.7.—This college includes as integral parts the Royal College of Science, the Royal School of Mines and the City and Guilds (Engineering) College. The pre-graduate courses of study lead up to an associateship and B.Sc. degree in biology, botany, chemistry, geology, mathematics, physics and zoology at the Royal College of Science; in mining, mining geology, metallurgy and oil technology at the Royal School of Mines; and in engineering (civil, electrical and mechanical) at the City and Guilds (Engineering) College. Candidates for admission to associateship and B.Sc. courses should have qualified for matriculation at the University of London, and they must satisfy College requirements as stated in the prospectuses. Post-graduate courses and research may be undertaken by qualified candidates in all the subjects stated, and many others which are detailed in the prospectuses. The post-graduate work may lead up to the diploma of membership of the Imperial College and to the M.Sc., Ph.D., or D.Sc. of the University of London. The fees are £62 10s. per session, except for research, which is £22 10s., and certain post-graduate courses, which are also £22 10s. per session. There are many fellowships, scholarships and prizes available for award. Any of the college prospectuses will be sent free on application to the Registrar, Imperial College, S.W.7.

*Battersea Polytechnic*, Battersea Park Road, S.W.11.—Complete day and evening courses in chemistry, chemical engineering and chemical technology. Fees, £18 per session for day students. There are also special evening classes in bacteriology, oils, fats and waxes, soaps and detergents, petroleum technology, paper making and testing, flour milling, analysis and microscopy of food and drugs; and recognised evening B.Sc. and F.I.C. courses. Facilities are provided for research in pure and applied chemistry. Fee, £1 to £1 10s. per session.

*Birkbeck College*, Bream's Buildings, Chancery Lane, E.C.4.—Complete evening courses for University of London science degrees and other examinations in science. Composition-fees for Intermediate or Final science examination, £5 per term, or £12 per session.

*Borough Polytechnic*, Borough Road, S.E.1.—A series of technical lectures on essential oils, by Mr. C. T. Bennett, B.Sc., Ph.C., commences in the autumn, and includes practical work. Foodstuffs, bacteriology, oils, colours and varnishes, printing inks, and laundry industry are the subjects of other courses. Chemistry classes are also held, beginning in September; fees, 10s. to £1 per session.

*Chelsea Polytechnic*, Manresa Road, Chelsea, S.W.3.—Day and evening courses in chemistry and botany leading to the B.Sc., M.Sc. and Ph.D. degrees of London University and the A.I.C. (Institute of Chemistry). Special courses for F.I.C. (Food and Drugs). Classes in applied chemistry, hydrogen ion measurements, dyes and drugs, photomicrography, etc. Research in physical, organic and cellulose chemistry. Fees: Day, £7 per term; Evening, £1—£3 per session (three terms).

*East London College*, Mile End Road, E.1.—Classes in chemistry, mathematics, physics and botany.—Intermediate, Final and Honours B.Sc., and courses for the diplomas of the Institute of Chemistry. Fee, £22 10s. per annum.

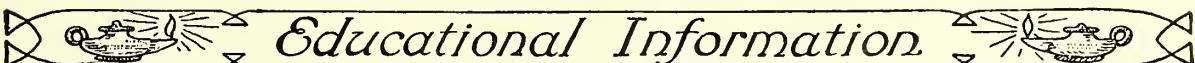
*Kings College*, Strand, W.C.2.—Courses are available in the Faculty of Natural Science for students preparing for B.Sc. degree and Institute of Chemistry examinations. Annual fees: Intermediate course, £36 15s.; Final course, £52 10s.

*Northern Polytechnic*, Holloway, N.7.—The composition fees for the Intermediate and Final B.Sc. courses are: Day, £18 per session; evening, £5 per session. Evening classes in chemistry, botany, physics and photography cost from 20s. to £3 per session.

*Royal Holloway College*, Englefield Green, Surrey.—For women students only, mainly residential. The college is a school of the University of London, and the degree courses include science. Fees: Residential students, £144 per annum; non-residential, £48 per annum.

*Sir John Cass Technical Institute*, Jewry Street, Aldgate, E.C.3.—Evening courses in chemistry, physics, mathematics, microbiology, brewing, malting, zoology, botany and vegetable physiology, metallurgy, mining, geology, and petroleum technology. Sessional fees (September to July): 20s. one evening per week, 35s. two evenings per week, plus 10s. for each additional evening per week.

*University College*, Gower Street, W.C.1.—Fees for B.Sc. (general or special) course for three sessions amount to £147. Facilities for post-graduate study; fee, £29 8s. for two sessions, and £22 1s. for one session. Reduced fees in the case of honours graduates who have taken their undergraduate course at the college.



## Educational Information

*Wandsworth Technical Institute*, High Street, Wandsworth, S.W.18.—Evening classes in chemistry, physics and botany. Fee for a recognised course, 15s. a session.

*West Ham Municipal College*, Romford Road, E.15.—Evening and day classes in chemistry, physics and botany, for B.Sc. London, etc. Inclusive fee, 14s. to 28s.

**MANCHESTER.**—*Victoria University*.—Composition-fee for B.Sc. degree in science, £2 to £4 2s. per session. Classes in bacteriology are held in the University in connection with the Department of Bacteriology and Preventive Medicine, York Place. Pharmacists are admitted to the elementary courses in bacteriology. Applications to Mr. W. W. C. Topley, M.A., M.D., Professor of Bacteriology and Director of the Public Health Laboratory.

*College of Technology* also provides specialised instruction in applied chemistry leading to the Manchester University degrees of B.Sc. Tech., M.Sc. Tech., and Ph.D., and also to certificates in the Faculty of Technology.

*Tutorial College*.—Revision course in botany, chemistry and physics; composition fee for the three subjects, £10 10s.

**NEWCASTLE-UPON-TYNE.**—*Armstrong College (University of Durham)*.—Tuition fees for degree course in pure science £35 per annum. Registration fee, subscriptions to students' societies and examinations fee, £7 13s. 6d. per annum.

**NORWICH.**—*Technical College*.—Day classes are held in chemistry and physics, and there are evening classes for botany, biology, chemistry and physics.

**OXFORD.**—*University*.—For particulars apply to Registrar. *Technical School*.—Fee for evening chemistry classes, 15s. per course.

**PLYMOUTH AND DEVONPORT.**—*Technical College*.—Day and evening courses of B.Sc. Lond. Sessional fees: Day, £15 to £20; part-time day classes or evening classes, £3 3s.

**PORTSMOUTH.**—*Municipal College*.—Instruction in Science and technological subjects. Fees, £2 2s. to £8 8s. per term for full-time day courses; 7s. 6d. to 25s. per session for evening courses.

**READING.**—*University*.—B.Sc. course, £35 per session. Preliminary Scientific examination of the Pharmaceutical Society, £28 per session. Evening classes in physics, chemistry and botany.

**ROCHDALE.**—*Municipal Technical School*.—Evening classes in chemistry and botany (practical work included).

**ST. ANDREWS.**—*University College*.—Inclusive fee for courses for B.Sc. degree in pure science, £94 10s.

**SALFORD.**—*Royal Technical College*.—Three years' full-time day course, for which a diploma, endorsed by the Board of Education, is awarded. Evening courses in chemistry and physics, qualifying for "course" and "higher course" certificate. Recognised by the Institute of Chemistry.

**SHEFFIELD.**—Degree courses in science. The composition-fee for three-year B.Sc. course is £90.

**SOUTHAMPTON.**—*University College*.—B.Sc. course composition-fee, £32 per session. Evening classes in science subjects, £1 to £5 per course.

**SWANSEA.**—*University College*.—Day courses are held for degrees in science. Composition fees for a degree or diploma course in pure or applied science, £20 per term.

**WIGAN.**—Full-time day courses in chemistry for honours B.Sc., A.I.C., national certificates in chemistry and gas engineering, first medical and pharmaceutical examinations. Part-time, day and evening courses. Also evening classes.

## Veterinary Surgery

The diploma of membership of the Royal College of Veterinary Surgeons is the only one recognised in the United Kingdom as qualifying the holder to be placed on the Register of Veterinary Surgeons, or to practise veterinary medicine and surgery. By the Veterinary Surgeons Act, 1881, it is provided that no person other than a person on the Register of Veterinary Surgeons may take or use "the title of veterinary surgeon or veterinary practitioner or any name title addition or description stating that he is a veterinary surgeon or a practitioner of veterinary surgery, or of any branch thereof, or is specially qualified to practise the same." Candidates who desire to enter upon the course of study for the diploma, must first pass a recognised examination in general education, and submit to the Royal College the certificate so gained for the approval of the Council (10 Red Lion Square, London, W.C.1). This examination must be passed one complete session before the date of the first professional examination.

The candidate then attends one of the affiliated colleges for the prescribed courses of study (extending over four sessions of about thirty weeks each), and at the end of each year is required to pass a professional examination. The student is not entitled to his diploma or to have his name on the register before he is twenty-one years of age. The subjects of the examinations are as follows:—

*First Professional Examination*.—Chemistry and physics; biology; elementary zoology and botany.

*Second Professional Examination*.—Anatomy of the domesticated animals; histology and physiology; animal management, and the principles of shoeing.

*Third Professional Examination*.—Pathology, bacteriology, and morbid anatomy; materia medica, pharmacy, therapeutics, and toxicology; veterinary hygiene and dietetics.

*Fourth Professional Examination*.—Principles and practice of veterinary medicine; meat inspection; principles and practice of veterinary surgery and obstetrics.

The curriculum will be extended to five years after 1932.

Graduates in science, medicine or agriculture, and holders of the diploma of M.R.C.S., or L.R.C.P., may be exempted from the first year's course and the examination at the end of that year. A similar concession may be granted to matriculated students in science, art or medicine who have passed a university examination (with honours or the equivalent) in chemistry and physics, botany and zoology. The examination fee payable to the Royal College of Veterinary Surgeons is £5 for each examination, or £3 3s. for re-examination in the same class. In addition to the post-graduate, several entrance scholarships are open at the affiliated colleges. The Royal College also grants a diploma in Veterinary State Medicine (D.V.S.M.). This is only open to members.

### Veterinary Colleges

(Affiliated to the R.C.V.S.)

**LONDON.**—*Royal Veterinary College* (founded 1791; incorporated 1875), Great College Street, Camden Town, N.W.1.—Educational fee for four years' course of instruction, £105, may be paid in four instalments. There are also library and other fees amounting to £12. Fees for occasional students are from £3 3s. to £8 8s. per subject, and for those taking the B.Sc. degree in veterinary science of the University of London additional fees totalling £15 15s. Secretary, Mr. T. C. Wright.

**EDINBURGH.**—*Royal (Dick) Veterinary College*, Summerhall (founded 1823).—Class fees for the complete curriculum amount to £105. There is also a matriculation fee of 10s. 6d. payable by all students at the beginning of each session. Principal, O. Charnock Bradley, M.D., D.Sc., M.R.C.V.S.

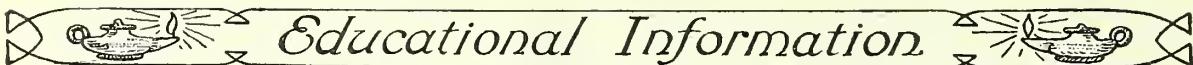
**DUBLIN.**—*Veterinary College of Ireland*, Shelbourne Road, Ballsbridge.—The College is conducted by the Department of Agriculture. The tuition fees for the full course amount to £84. Principal, Professor J. F. Craig, M.A., M.R.C.V.S. Particulars may be obtained from the Registrar.

**GLASGOW.**—*Glasgow Veterinary College* (established 1862; incorporated 1909), Buccleuch Street, Garnethill. Full particulars are obtainable from the secretary. Principal, Professor A. W. Whitehouse, M.A., M.R.C.V.S.

**LIVERPOOL.**—*The University Veterinary School* gives a university training for the M.R.C.V.S. and also for a veterinary degree. For the fees and complete curriculum application should be made to the Director.

### Veterinary Degrees

Having obtained his diploma the graduate is eligible for numerous official appointments at home and abroad and commissions in the veterinary units of the Army. A member of the Royal College who has been engaged in the practice of his profession for two years or upwards may present himself for examination for the diploma of Fellowship (F.R.C.V.S.). Veterinary science degrees are granted by several universities, including Edinburgh, Liverpool and London, to candidates who matriculate and take the prescribed course of study.



## Optical Diplomas

Though the practice of sight-testing and spectacle fitting is not confined to persons who have been awarded a diploma by one of the recognised examining bodies, the possession of such a qualification is eminently desirable. The training and experience necessary for passing such tests should be regarded as the minimum to be obtained before commencing business as an optician. There is at present no legal obligation to do so, but there is a moral obligation to the profession and to the public. After qualifying a post-graduate course at one of the refraction hospitals (London, Leeds or Glasgow), where a more intimate knowledge of the diseases of the eye may be obtained, is strongly recommended. Supplementary examinations on these lines have been instituted by the Spectacle Makers' Company and the British Optical Association. Scholarships in optics are available at the Northampton Polytechnic Institute, London, q.v. The examining bodies usually make some concession to candidates over forty years of age.

### The Diploma Schemes

THE SPECTACLE MAKERS' COMPANY, 36 Furnival Street, Holborn, London, E.C., holds its diploma examinations in London in May and November. Candidates must satisfy the examiners in all sections of the examination, which is divided into two parts, the Preliminary being concerned with general and practical optics, and the Final with visual optics and sight-testing. The fees are £4 4s. for each division, and in addition there is a registration fee of £4 4s. (including £3 Government duty), payable when the diploma is issued, and an annual payment of 10s. to the Company for "quarterage." The subjects of the examination are as follows:—

*Preliminary:* (a) Optical bench work, (b) and (c) general and practical optics, (d) neutralisation of lenses and lens-setting.

*Final:* (e) Frame adjustments and measurements, and optical prescriptions, (f) and (g) visual optics, (h) practical sight-testing.

The Company also conducts a more advanced examination (honours). This examination testifies the candidate's ability to recognise abnormal conditions of the eye. The prospectus and full particulars of the examinations may be obtained from the clerk of the Company at the above address.

THE BRITISH OPTICAL ASSOCIATION (incorporated 1895), Clifford's Inn Hall, London, E.C.3, conducts a Preliminary, a Dispensing, a Fellowship, a Supplementary and an Honours examination, the first-named being in general education and the others in optics. No candidate will be accepted for the Fellowship examination who has not previously passed the Preliminary or an examination of a similar standard, e.g., Senior College of Preceptors, Pharmaceutical Society of Great Britain or of Ireland, provided the candidate has passed in mathematics, English, one scientific subject and one language. The Fellowship examination is divided into five sections, as follows: (A) Estimation of refractive errors; (B) physiologic optics; (C) mechanical and physical optics; (D) anatomy and physiology; (E) recognition of pathological conditions. The Honours examination is in the following subjects: (A) Advanced physiological optics; (B) ocular embryology and physiology; (C) recognition of pathologic conditions of the eye; (D) ethics and etymology. The examinations are generally held in London in May and November, and annually in Edinburgh, Liverpool, Manchester, Birmingham, and occasionally in other centres. The examination fees are: Preliminary, £2 12s. 6d.; Dispensing, £2 2s.; Supplementary, £3 3s.; Fellowship, £10 10s.; Honours, £5 5s. The optical examinations are open to persons over eighteen years of age. After January 1, 1931, the following conditions will be enforced:—(a) All candidates must have passed the Matriculation examination of a British University, or the Preliminary examination of the British Optical Association, or other examination which is considered by the Council as

equivalent to the Matriculation standard. (b) All candidates, prior to examination, must submit evidence of at least 500 hours' training in mechanical and technical optics, and 100 hours' clinical training at a recognised institution. (c) In addition to the requirements of (b) all candidates, prior to full examination, must submit evidence of attendance at an approved course in clinical experience, specifically arranged with abnormal or pathological subjects at a recognised institution. (d) All candidates, prior to certification, must submit evidence of twelve months' employment or business training with an approved optical firm or optician. This evidence to be in addition to the mechanical and technical training in (a). All candidates registered under a recognised course prior to December 31, 1930, will be exempt from the above requirements (a, b, c, d) if registered with the British Optical Association during the present year, subject to a satisfactory certificate of attendance endorsed by the head of the Applied Optics Department, being submitted. All candidates who enter for the Fellowship examination (or part of it), or who claim exemption from parts of the examination by virtue of having passed equivalent examinations at the Manchester College of Technology, Bradford Technical College, or Northampton Polytechnic Institute, during 1930 will be allowed (subject to No 102 of the Articles of Association) to complete their examination and enter the Association under conditions at present existent, and will be exempt from the new requirements. The Supplementary examination was closed to members of the Spectacle Makers' Company on July 1, 1930, and will be to members of the British Optical Association on January 1, 1931. The modified or exemption examination will be withdrawn on January 1, 1931, to all candidates, irrespective of age. In 1931 it will be necessary for the candidate to have some knowledge of fundus drawing. The full prospectus may be obtained from the Secretary.

THE NATIONAL ASSOCIATION OF OPTICIANS, 130 Princes Road, Liverpool, has instituted a diploma scheme under which examinations are held in January and July at such places as the Council may determine. The examination consists of two parts, the First and the Final, which may be taken separately. The former is open to candidates under the age of twenty-one, but no certificate is issued until they are fully qualified. The subjects are as follows:—

*First:* (a) A written examination in general and practical optics, and optical calculations. (b) Oral examination in general and practical optics, and optical calculations. Fee, £3 3s.

*Final:* (a) Written examination in visual optics, in anatomy, physiology and diseases of the eye. (b) Practical examination in visual optics, in anatomy, physiology and diseases of the eye. (c) Practical sight-testing. (d) Practical face and frame measurements. (e) Practical analysis and marking of lenses and prisms. Fee, £3 3s.

Two scholarships are offered annually to optical students under twenty-one years of age; particulars of these and the prospectus may be obtained from the Secretary.

### Optical Instruction

The following are among the principal schools where the necessary instruction in preparation for the examinations may be obtained:—

NORTHAMPTON POLYTECHNIC INSTITUTE, St. John Street, London, E.C.1.—In the applied optics section training is given for ophthalmic and dispensing opticians. The department is provided with well-equipped laboratories for anatomy, physiology, sight-testing, clinical work, general optics and optical instruments, together with workshops for lens grinding, edging, etc., instrument making and spectacle frame work. The work required for all F.S.M.C. and F.B.O.A. examinations is covered in both day courses (full-time) and evening courses. The fees range from 30s. per session for evening courses to £18 for the full-time day course. Scholarships tenable at the full-time day course are offered by the governing body and by the Aitchison Memorial Com-

## Educational Information

mittee. The next examination for the latter will be held in 1931. Evening classes commence on September 22, and day classes on October 1. Enrolment for evening classes are taken during the week commencing September 15. The head of the applied optics department is Mr. H. H. Emsley, B.Sc. For prospectus, apply to Mr. S. C. Laws, M.A., M.Sc., Principal.

**REFRACTION HOSPITALS.**—The lectures and demonstrations arranged in connection with the granting of the hospital certificate commence in September. The subjects include physiology, pathology, embryology, methods of examination, use of drugs and hospital routine. Post-graduate students in ophthalmic optics may attend the hospital without taking the examination. A special course has been inaugurated for the supplementary examinations of the S.M.C. and the B.O.A. Full particulars can be obtained from 58-60 Newington Causeway, London, S.E.1, or 51 St. Paul's Street, Leeds, or 26-28 Richmond Street, Glasgow, C.I.

**THE SCHOOL OF OPTICS, LTD.**, 2 Guilford Place, London, W.C.1, where Mr. Lionel Laurance and Mr. H. Oscar Wood prepare students for the recognised qualifying examinations, is well fitted up and thorough training is given. The complete full-time course (fee £31 10s.), which commences in May and November of each year, terminates with the next succeeding examination, and covers the entire syllabus. The part-time combined course (fee £14 14s.), which can be commenced at any time, consists of homework by correspondence, supplemented by classes held during the month preceding the examination, and, prior to it, on Wednesday and Thursday afternoon of every week.

**BRITISH OPTICAL INSTITUTE, LTD.**, Fern Lodge, 20A Grove Road, Brixton, London, S.W.9 (Principal, Dr. Max Coque, B.Sc.).—Full courses cover the entire syllabus of all optical examinations. Afternoon classes are held all the year round on two days a week in order to enable students to carry out all branches of experimental and practical work. Evening classes during the three months and daily revision classes during the month preceding each London examination. Special attention is drawn to the clinic, where students who have reached a sufficient degree of proficiency have the opportunity of seeing and handling actual cases, often of great interest. For particulars apply to the Principal.

**MR. C. A. SCURR, F.S.M.C., F.B.O.A.**, chemist and druggist, 50 High Street, Barnet, prepares candidates for either of the foregoing examinations. The courses, being mainly correspondence, are particularly suitable for those desiring an optical qualification by spare-time study. The practical work is usually performed during a visit to London just prior to the examination. The fee is £8 8s., that for the F.N.A.O. modified examination being £5 5s.

**MR. WALTER SIMPSON, F.S.M.C., F.B.O.A.**, chemist and druggist, 510 Fulham Road, London, S.W.6, conducts correspondence courses for the B.O.A. and S.M.C. examinations, the lectures being supplemented by practical instruction to suit the students' convenience. Mr. Simpson has special facilities for students to become acquainted with abnormal conditions and ocular disease. The fee for the complete course is £15 15s. Further details are given in the prospectus.

**THE TECHNICAL COLLEGE**, Bradford, conducts evening classes to meet the examinations of the Spectacle Makers' Company and the examinations of the British Optical Association. Particulars may be obtained from the Principal, Mr. H. Richardson.

**MUNICIPAL COLLEGE OF TECHNOLOGY**, Manchester, has arranged a full-time day course in applied optics extending over a period of two years. Candidates are required to pass an entrance examination, on which also a British Optical Association Scholarship of the value of £40 per annum is awarded. The College also conducts evening classes which cover the syllabus of the British Optical Association's examinations. Special facilities are provided for post-fellowship research in applied optics during the part-time session of the College.

**WEST HAM MUNICIPAL COLLEGE**, Romford Road, Stratford, London, E.15, holds classes, conducted by Mr. W. Swaine, B.Sc., F.Inst.P., F.S.M.C., in pure and applied optics, on Thursday afternoons (2.0-4.30) and evenings (6-9.30). These are suitable for ophthalmic, dispensing and instrument opticians, and cover the syllabuses of the optical examinations. There are also facilities for research. Fees: For East Ham and West Ham residents, 14s.; other students, £1 8s. Enrolment September 15 to 19. Classes commence September 25. Apply for prospectus and other particulars to the Principal.

**THE COLLEGE OF OPTICS**, 395 Argyle Street, Glasgow, holds all-day, part-time and postal courses, which cover the work in general and visual optics and practical sight-testing, suitable for either of the examinations. Classes are also held in Edinburgh and Dundee. Special classes have also been arranged for the supplementary examinations. The Principal is Mr. T. S. Baird, Argyle Street, Glasgow.

## Books for Students

Each college principal has a preference for certain text-books which students are required to use. The following list contains some of the popular text-books for pharmaceutical students.

### BOTANY

- “Pharmaceutical Botany” (C. & D. Office), 5s.
- “Elementary Botany,” Edmonds (Longmans), 4s.
- “Botanists’ Pocket Book,” Hayward, revised by G. C. Druse (Bell), 5s.
- “Practical Botany for Beginners,” Bower and Gwynne-Vaughan (Macmillan), 4s.
- “Text-book of Botany for Medical and Pharmaceutical Students,” James Smali (Churchill), 2ls.
- “Botany for Students of Medicine and Pharmacy,” Fritch and Salisbury (Bell), 10s. 6d.

### CHEMISTRY

- “Elementary Inorganic Chemistry,” James Walker (Bell), 5s. (suitable for beginners).
- “Text-book of Inorganic Chemistry,” Senter (Methuen), 7s. 6d.
- “Modern Inorganic Chemistry,” Mellor (Longmans), 12s. 6d.
- “Text-book of Inorganic Chemistry,” Newth (Longmans), 8s.
- “Theoretical Organic Chemistry,” Cohen (Macmillan), 7s.
- “Inorganic Chemistry,” Lowry (Macmillan), 20s.
- “Volumetric Analysis,” Hampshire (Churchill), 7s. 6d.
- “Elementary Analytical Chemistry,” Arnall & Appleyard (Churchill), 6s.

### PHARMACEUTICAL LATIN AND PRESCRIPTION-READING

- “Latin Grammar of Pharmacy,” Joseph Ince (Baillière), 7s. 6d.
- “Medical and Pharmaceutical Latin for Students of Medicine and Pharmacy,” R. R. Bennett (Churchill), 10s. 6d.

### MATERIA MEDICA

- “Materia Medica,” Southall, revised by E. W. Mann (Churchill), 12s. 6d.
- “Text-book of Materia Medica,” Greenish (Churchill), 25s.

### PHARMACY

- “British Pharmacopoeia,” Constable, 10s. 6d.
- “British Pharmaceutical Codex” (Pharmaceutical Society), 30s.
- “Practical Pharmacy,” Lucas (Churchill), 27s.
- “Text-book of Pharmacy,” Bentley (Baillière), 15s.
- “Essentials of Pharmacy,” Wootton (London College), 5s.
- “Art of Dispensing” (C. & D. Office), 8s.
- “Forensic Pharmacy” (Pharmaceutical Society), 3s. 6d.
- “Dispensing for Pharmaceutical Students,” Cooper & Dyer (Pitman), 7s. 6d.

### PHYSICS

- “Practical Physics,” Allen and Moor (Macmillan), 10s. 6d.
- “Text Book of Physics,” Duncan and Starling (Macmillan), 18s.
- “Manual of Physics,” Crowther (Oxford University Press), 14s.
- “Principles of Physics,” Smith (Arnold), 9s.

# Fairchild Scholarship and Prizes

THE 1930 examination of the Fairchild scholarship and prizes was held on June 19 at the following centres:—Belfast; Cardiff; Dublin; Edinburgh; London; Manchester.

The candidates who complied with all the conditions and entered for this year's examination numbered sixty-two. Four were absent from the examination. Of the sixty-two who entered forty-nine represented England, three the Irish Free State, three Northern Ireland, four Scotland, three Wales.

The questions were set and assessed by Mr. Harry Brindle, B.Sc., Ph.C., A.I.C., F.C.S. (chemistry and physics); Mr. Peter Boa, Ph.C. (practical pharmacy and prescription-reading); Mr. Thomas Marns, M.P.S. (business knowledge and sale of poisons); Professor J. Small, D.Sc., Ph.C., F.L.S., M.R.I.A., F.R.S.E. (botany). The following are the results:—

*Miss Laura Edith Pond*, New Malden, Surrey, wins the scholarship, value £60, with 355 marks out of a possible 500.

*Mr. Edward Shotton*, Smethwick, wins the England prize, £5.

*Mr. James Hood*, Paisley, wins the Scotland prize, £5.

*Mr. John C. Roberts*, Newport, Mon., wins the Wales prize, £5.

*Miss Laura Edith Pond* was registered at London and apprenticed to Miss P. M. Osborne, Ph.C. (Lady Chemists, Ltd., Mill Hill, N.W.7).

*Mr. Edward Shotton* was registered at Smethwick and apprenticed to Taylors (Cash Chemists) Midland, Ltd., Hazlewell Lane, Stirlingshire, Birmingham.

*Mr. James Hood* was registered at Paisley and apprenticed to Mr. Robert Inglis, M.P.S., 44 Glasgow Road, Paisley.

*Mr. John C. Roberts* was registered at Newport, Mon., and apprenticed to Mr. C. Paine, M.P.S., 3 Commercial Street, Newport.

The following is the text of the papers:—

## CHEMISTRY AND PHYSICS

(Time allowed—two hours)

(1) Explain briefly the following terms with respect to prisms:—(a) refracting angle, (b) angle of minimum deviation, (c) right-angled prism, (d) dispersion. Give a practical method for the determination of the angle of minimum deviation and show how this is connected with the refractive index of the glass of the prism. Explain briefly the use of the prisms in the prism binoculars and in the direct vision spectroscope.

(2) Indicate carefully wherein the following special forms of thermometer differ from the ordinary kind. Give fully the reasons for the differences, including purposes for which these special thermometers are used:—(a) clinical thermometer, (b) alcohol thermometer, (c) wet and dry bulb thermometer, (d) minimum thermometer, (e) nitrogen-filled mercury thermometer, (f) metallic thermometer, (g) blackened bulb thermometer.

(3) How would you demonstrate practically the fact that there is a difference between the rates of diffusion of hydrogen and oxygen; your experiment should prove which diffuses the more rapidly. If 100 c.c. of hydrogen diffuse in a certain time, what volume of (a) oxygen, (b) water vapour, would diffuse in the same time, assuming the temperature to be the same in all cases?

(4) Explain what occurs when ammonia and ammonium chloride are added to a solution containing ferric chloride, magnesium chloride, chrome alum and ordinary alum, and what happens when the precipitate is boiled with sodium peroxide and water.

(5) Describe with practical details how you would prepare specimens of the two common oxides of phosphorus. Compare and contrast the chemical and physical properties of these two oxides with the oxides of arsenic and antimony.

## BOTANY

(Time allowed—one hour)

(1) Draw a large-scale diagram of a typical leaf in vertical section. Label all the tissues and add to your diagram a series of arrows indicating the gaseous exchanges (a) during the day and (b) during the night.

(2) Describe carefully the functions of the root and the structural features which are associated with each function.

(3) Name the division of the vegetable kingdom to which each of the following belongs: *Abies*, male fern, senna, Irish moss, ergot, Iceland moss, *Lycopodium*. In each case state briefly the reason for your classification.

## PRACTICAL PHARMACY AND PRESCRIPTION READING

(Time allowed—one hour and a half)

(1) Describe in outline the official directions for preparing: (1) Liniment of aconite. (2) Liniment of potassium iodide with soap. (3) Compound lead suppositories. (4) Compound wool fat ointment. State the principal constituents; and the proportion of active ingredients in the first three.

(2) Write the full Pharmacopœia (Latin) name for black draught, emollient ointment, infusion of chiretta, infusion of bearberry, crushed linseed, phenyl acetamide.

(3) When syrup of glucose is ordered as an excipient for official pills it is in some instances stated as a "sufficient quantity," and in others, for example, compound rhubarb pills, as "25 grammes, or a sufficient quantity." In practice, how would you carry out these instructions?

(4) Write the equivalent in mils of 1 fluid drachm and 1 fluid ounce; and the equivalent in grains of 1 centigram, 1 decigram and 1 kilogram.

(5) Write the following prescriptions in English and render the directions in appropriate language:—

(a) R Ammon. carb., gr. xxxvi.

Vin. ipecac., 5j.

Syrup. tolu., 5j.

Mist. ammoniaci, ad 5vj.

Fiat mist.

Sig.: Cochlear. med. ex 5vj. aqua ter. vel quater in die sumend.

(b) R Zinc sulphatis,

Potassae sulphurat., ana. 5j.

Aq. dest., 5vj.

Ft. lotio sec. art.

Sig.: Applicand. saepe si opus sit.

How should (b) be compounded?

## BUSINESS KNOWLEDGE AND SALE OF POISONS

(Time allowed—one hour)

Question 4 should be attempted by all candidates.

(1) (a) The following goods were purchased from and returns made to a wholesale chemist, Messrs. A., Ltd.:—

		£ s. d.
March 3,	Goods purchased	20 5 10
,, 13.	do.	5 6 8
,, 16.	do.	3 10 7
,, 25.	Returns	2 10 1
April 3.	Goods purchased	40 9 8
,, 8.	Returns	6 4 2
,, 17.	Goods purchased	12 7 4

Show the account with this firm in the bought ledger, posting the above items. Rule off the account by assuming payments were made, one clear month's credit being taken with five per cent. discount.

(b) Make out a cheque showing both the printed and written words, using as an example the first payment made in the above. What is the effect of crossing the cheque?

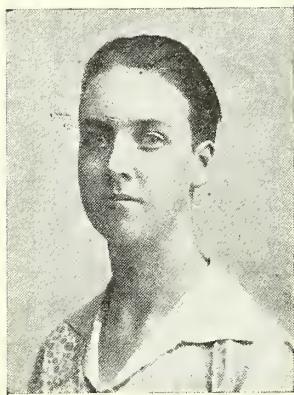
(c) How is the percentage of gross profit calculated?

(2) Give a brief description of the following classes of Insurance, and one claim which could arise under each:—

(a) Employers' liability. (b) Third party.

(3) Smart, unqualified Assistant wanted in new business, Window-dressing, Photography, Dispensing and Counter. Apply by letter, giving particulars of age, experience, etc., and salary required.—G. Middleton, Chemist, Exeter. Write out your application for such a position.

(4) State the conditions under which the following articles can be sold:—Salt of lemon, potassi cyanid., tinct. opii, pulv. lobeliae co. B.P.C., spirit of salt, pil. coloc. et hyos.



MISS LAURA EDITH POND

## Trade Report

The prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers receive the goods into stock, after which much expense may be incurred in garnishing, packing, etc. Qualities of chemicals, drugs, essential and fixed oils, and many other commodities vary greatly, and higher prices than those here quoted are charged for selected qualities of natural products even in bulk quantities.

28 Essex Street, W.C.2, August 14

WHILE business cannot be described as brisk, it shows in some directions signs of improvement. A number of commodities are better, including ipecacuanha (Matto Grosso), camphor, star anise oil to arrive, Portuguese ergot of rye, menthol and Japanese peppermint oil, first hand. New crop Belgian chamomile flowers appears to be a fair-size crop, but the quality is not good. Depressed markets continue to be reported in lubricating and mineral oils. Quoted prices show little change, but a number of markets are unsteady. In fixed oils, etc., the markets are quiet. Palm oils are steadier and in better demand. Linseed oil has recovered. Turpentine is still weakening. Price-cutting in industrial chemicals is noticeable, though there is no indication of any general break in value; subdued markets are reported in most quarters. Arsenic is unchanged on limited demand. Copper sulphate is slow. Sodium hyposulphite has been in fair demand. Potassium carbonate is easy. Potassium prussiate is steady, but demand is small. Pharmaceutical chemicals are mostly unchanged, with business remaining generally quiet.

Higher	Firmer	Easier	Lower
Bergamot oil	Antimony	Cadmium	Carbolic acid
Coriander seed	Gum acacia	Lemon oil	Cloves (c.i.f.)
Linseed oil	(c.i.f.)	Turpentine	Cream of
Menthol (c.i.f.)	Star anise oil	Wax	tar:tar
Peppermint oil (Jap. c.i.f.)	(c.i.f.)	(Carnauba)	Emetine salts
			Hydrastis
			Naphthalene
			Pimento
			Rubber
			Shellac

### Crude Drugs, etc.

ALOES.—The exports from the Union of South Africa during March amounted to 99,435 lb. (£760), against 73,680 lb. (£614) in March 1929. During the three months ended March 31, 1930, the exports were 159,997 lb. (£1,235), against 93,357 lb. (£2,269) for the corresponding period of 1929.

ANTIMONY.—Chinese refined on the spot is more firmly held, chiefly due to the difficulty of arranging new business for shipment from China. Spot parcels are worth fully £27, and e.i.f. terms for shipments are upward of £24 10s. Chinese crude is still quite nominal at about £22. English refined high-grade stands at £46 to £46 10s., and ordinary good brands can be obtained down to about £38. Chinese white oxide is nominally £32.

BISMUTH.—There is a moderately good demand coming forward, but outside competition is being felt somewhat, although the tone is called steady, with the Syndicate's price remaining at 4s. per lb. for at least five-cwt. lots.

A somewhat unusual feature is the arrival of 41 cases bismuth metal per "American Farmer" from New York to London.

CADMUM.—The tendency of the market has been easy, a further decline being shown at about 3s. 3d. to 3s. 4d. per lb. for fair-sized lots, although contracts for good quantities could probably be arranged at a little under the lower figure. An additional parcel has been received lately from the Continent.

CAMPHOR.—Japanese  $\frac{1}{4}$  oz. squares are very scarce on spot and business has been done at 2s. to 3s. 1d.; for arrival at end of month the price quoted is 2s. 10d. Business has been done in slabs at 2s. 3d. and in flowers at 2s. 5d.

CASCARA SAGRADA.—New crop is unchanged at about 4s. per cwt. c.i.f. ex Pacific Coast. On the spot old bark is firm at 70s.

CASSIA FISTULA.—Fine quality Java pods are unobtainable on the spot, while fairly good quality Indian is selling at from 17s. 6d. to 18s. 6d.

CHAMOMILES.—The Belgian new crop appears to be rain-damaged and quotations must be taken in conjunction with actual samples as descriptions are insufficient. First arrivals may be expected next week. Prices range from 9s. to 12s., and really nice white flowers may be scarce. Old crop values are from 80s. to 110s.

CLOVES.—Zanzibar are quiet and unchanged at 1s. 1d. per lb. on the spot. Sales for shipment include July-August at 1s. 0d. and August-September at 1s. 0d. e.i.f. Madagascar on the spot are 1s. 1d. per lb.

The landings in London of Zanzibar during the week ended August 9 were nil and the deliveries 10, leaving a stock of 807, against 1,706 in 1929 and 4,992 bales in 1928. The landings in London from January 1 to August 9 have been 6,130, against 5,034 in 1929, and the deliveries 5,320, against 5,715 in 1929.

COD LIVER OIL maintains its former position, and consumers are showing more interest, chiefly for autumn shipment. Agents are quoting from 100s. to 102s. 6d. per barrel, c.i.f. for finest 1930 non-freezing steam-refined Norwegian oil.

CORN PRODUCTS, ETC.—Guaranteed water-white English glucose (corn syrup) is unchanged at 19s. per cwt. for August-October delivery ex store, London; American guaranteed water-white is also 19s. net for delivery up to end of October, ex store, London. Dutch maize starch powder (cornflour) is 12s. 3d. per cwt. on the spot; American for August-October delivery is 12s. 3d. ex store, London. Pearl starch for August-October delivery is 11s. 9d. per cwt. ex store, London. Dutch maize starch crystals is 18s. on the spot, and American for August-October is 16s. per cwt. ex store, London. Dutch dextrin is quoted at 18s. to 22s. per cwt. on the spot, as to quality. American canary for August-October delivery is 18s. 4d.; white is 18s. 1d. per cwt. net ex store, London, for August-October delivery. Dutch farina is firm at 10s. per cwt. on the spot, and to arrive 9s. 3d. is quoted. October-December shipment is 9s. 7d. f.o.b. Polish is not on offer.

ERGOT OF RYE.—The Continent is offering cheaply some out of condition Polish, which has somewhat depressed the price of good sound on the spot, and the value of good sound so-called Russian on the spot is 10d. to 10d. Portugeuse seems to be scarce and dearer at 1s. 6d. to 1s. 8d.

GUM ACACIA is fully steady, and shippers are inclined to be firmer, now quoting August-September shipment at 58s. per cwt., c.i.f. for Kordofan cleaned sorts, and 56s. e.i.f. for natural. Spot value for Kordofan cleaned is 66s. 6d. per cwt., and natural 64s. 6d. Talha is steady at 37s. per cwt. to 40s. spot.

HYDRASTIS is cheaper on the spot at 8s. 6d. per lb., with lower c.i.f. prices available for quantity.

IPÉCAUANHA.—An important business has been taking place in Matto Grosso, partly owing to liquidation of a heavy stock and meeting the lower prices by ordinary stockholders. The forced sales have now finished and the price is much firmer at 10s. to 10s. 6d. for good testing root. There is only one bale of Johore here and the value is about 10s. per lb.

MAGNESIUM.—Under the satisfactory progress of consumption, and although production has been at somewhat progressive rate, the tone has been fairly well maintained. British makers are quoting 2s. 9d. to 3s. 3d. per lb. for small sticks, ingots and bars according to specifications; ribbon is priced at 13s. to 15s. wire at 10s. 6d. to 12s. 6d., and powder at 5s. up to 7s. 6d. per lb. according to quantity.

MENTHOL comes higher from Japan, K/S brands are quoted for October-December shipment at 14s. c.i.f.; January-March shipment, 13s. 10d., second hand sellers asking 13s. 7d. and 13s. 6d. respectively. Spot is steady at 14s.

MERCURY.—The tone of the market has been fully steady, although the demand has been rather restricted and chiefly of a hand-to-mouth character. Official spot prices net range from £22 to £22 2s. 6d. per bottle, and the f.o.b. quotation is retained at £21 15s. net for at least 25 bottles.

PEPPER is steady at 9d. per lb. spot for fair black Singapore, Lampung is 9d. spot; to arrive, sales include May-July shipment at 7d. to 6d., July-August 6d. to 5d., to 5d., August-October 5d. to 4d. to 5d. e.i.f. Telli-cherry for August-September shipment is 9s. e.i.f., and Alleppy 8s. c.i.f. White Muntok is lower, with spot sales at 9d. and afloat sold at 8d. to 8d. Sales for shipment include May-July at 7d. to 7d., July-August 8d. to 7d., to 7d., and August-October at 8d. to 6d. to 7d. e.i.f.

PIMENTO is quiet at 7d. per lb. spot; July-August shipment is lower, 6s. per cwt. e.i.f., and August-October 6s. 6d. c.i.f.

PLATINUM.—The selling limit of leading refiners for refined platinum was reduced to £8 5s. per oz., and outside sellers are quoting about £8. Business is very slow. Iridium, raw, is very dull but maintained at £51 10s. per oz.

RUBBER is again easier, and has touched fresh low records, spot at one time having been done down to 4s. per lb., but steadied up slightly before the close. Since our last the market has declined fully 4d. per lb. The market at the moment is in a very sensitive condition, and the gradual fall in price merely accentuates the weakness all round. In spite of the present low value, manufacturers are only purchasing from hand to mouth. Arrivals last week totalled 663 tons, whilst deliveries were 998 tons, showing a further decrease in the stocks of 335 tons. The London stock now stands at 80,044 tons, against 31,444 tons at the corresponding period last year. The Liverpool stock now stands at 28,660 tons. Quotations (Wednesday, 5 p.m.): No. 1 standard ribbed smoked sheet, spot and August-September, 4 $\frac{1}{2}$ d.; October-December, 4 $\frac{1}{2}$ d.; January-March, 5d.; April-June, 5d. per lb.

SARSAPARILLA.—Grey Jamaica is in little better supply at 1s. 6d. for usual good quality. Red native is still on the short side here and business has been done in fair reddish at 1s. 6d. A little mixed colours could be obtained at slightly less.

SEEDS.—ANISE.—Spanish is 5s., and Russian 30s. 6d. per cwt. on the spot. CANARY.—Mazagan on spot is quiet at 27s. Tangier is unchanged at 25s. 6d., and Morocco (f.a.q. 4 per cent.) is offered at 25s. Turkish 2 per cent.: business has been done at 19s. for August-September shipment to Liverpool. CUMIN.—Malta is 70s. for sifted and 65s. for fair average quality. Morocco on spot has been sold at 57s. 6d. The price for shipment is 52s. 6d. c.i.f. FENUGREEK on spot is 18s. Old crop for shipment is 15s. c.i.f., and new crop is quoted at 14s. 6d. c.i.f. CARAWAY.—Dutch on spot is quoted at 34s. per cwt. MUSTARD.—English is quoted at 26s. to 33s. per cwt. according to quality. CORIANDER.—Last week-end coriander went from 9s. 6d. to 11s. A little business was done at this figure (it was reported). The price quoted now is 10s. 6d., with very little business passing.

Sellers of Morocco coriander seed do not seem anxious to offer what little there remains of the last crop, and it is the opinion that there is not much of the last crop left on the other side which would be satisfactory as to quality. Examination of samples of a parcel of 1929 seed, lying in Morocco, showed that the seed was badly infested with weevils, and probably other lots available on the other side are also in like condition. It has been difficult to get replies from shippers for offers of the last crop of this seed, and this might indicate that either the stocks are almost exhausted or else the holders are chary of selling the stocks as *sound condition*. With the poor quality of the 1930 crop, there will be good demand during the next few months for the sound seed of the last crop, which will probably be firmly held.

SENEGA.—Insiders predict that the bottom has now been reached. On the spot 2s. 2d. is quoted, and 2s. c.i.f.

SHELLAC is lower at 95s. per cwt. for usual standard TN orange; fine orange is 115s. to 200s.; pure button 130s., and AC cakey 115s. To arrive, sales include August-September at 80s., with closing sellers of September-October at 81s., and October-November at 83s. c.i.f. Sales for delivery include October at 85s. to 87s., and December at 87s.

WAX (CARNAUBA) is quiet, and again easier. Fatty 77s. 6d. per cwt. c.i.f. for September-October shipment, and 78s. 6d. per cwt. c.i.f. for October-November shipment. Chalky 76s. per cwt. c.i.f. for September-October shipment, and 76s. 6d. per cwt. for October-November shipment. Mediana 110s. c.i.f., and Primeira 115s. c.i.f.

### Essential Oils

No first hand offers of star anise are available, and second-hand oil is firm to come forward. Japanese dementholisised peppermint is higher from Japan. Lemon oil (Sicilian and Californian) is easier.

ANISE (STAR).—"Red Ship" is very firm to come forward without first-hand offers. Second-hand sellers quote for July-August shipment leads in cases, 3s. 6 $\frac{1}{2}$ d.; tins in cases, 3s. 5d.; drums, 3s. 4 $\frac{1}{2}$ d. c.i.f. Spot values are: leads, 4s. 9d.; tins, 4s. 6d.

BERGAMOT is slightly firmer at 10s. 6d. per lb. spot and about 10s. per lb. c.i.f.

CASSIA.—80 to 85 per cent. is quoted at 3s. 9d. per lb. spot and 3s. 2d. c.i.f.

CITRONELLA.—Ceylon spot is quoted at 2s. 2d. and Java 2s. 4d. per lb. For shipment, Ceylon is 1s. 10 $\frac{1}{2}$ d. c.i.f. and Java 2s. 5d. per lb. c.i.f.

GERANIUM.—Bourbon is quoted at 16s. 9d. per lb. spot, and 16s. 6d. per lb. c.i.f. Algerian is neglected at 15s. 9d. to 16s. per lb. spot.

LEMON is very slow and prices appear to be easier. Hand-dressed on the spot is quoted at from 4s. to 4s. 3d., and to come forward, c.i.f. 4s. to 4s. 1 $\frac{1}{2}$ d. per lb. Machine-made on the spot is 3s. 7 $\frac{1}{2}$ d. to 3s. 9d. per lb., and to arrive 3s. 6d. to 3s. 7 $\frac{1}{2}$ d. per lb. c.i.f. California lemon has been reduced to 2s. 10 $\frac{1}{2}$ d. per lb. in drums spot.

LEMONGRASS is quoted at 2s. 5d. per lb. for shipment and 2s. 6d. per lb. spot.

LIME.—The following figures show the exportation of oil of lime from British Guiana:

From	1927		1928		1929	
	Gallons	Value	Gallons	Value	Gallons	Value
United Kingdom	237	\$12,015	440	\$26,316	597	\$35,910
United States ..	36	2,160	—	—	180	10,440
British West Indies	—	—	—	—	24	1,235

ORANGE.—Californian is quoted at from 6s. to 7s. per lb. according to quantity.

PEPPERMINT.—Japanese dementholisised oil is higher from Japan, K/S brands being quoted for October-December shipment at 4s. 9d. c.i.f.; January-March, 4s. 7 $\frac{1}{2}$ d. c.i.f. Second-hand sellers for oil afloat quote 4s. 4d.; October-December shipment, 4s. 6d.; January-March, 4s. 5d., all c.i.f. On the spot, 4s. 6d. to 4s. 7 $\frac{1}{2}$ d. per lb. is quoted. American peppermint on the spot is quoted at about 12s. 3d. per lb. for good branded oil, with c.i.f. offers at from 11s. 3d. per lb. (from Oregon) to 11s. 6d.

SPEARMINT is quoted at from 18s. 6d. to 20s. per lb. spot, according to seller, and to arrive at from 17s. to 18s. per lb. c.i.f.

WORMSEED (CHENOPODIUM) is quiet at from 10s. 6d. to 11s. per lb. c.i.f.

The following arrivals have taken place from the countries indicated during the period August 6 to August 12, inclusive: Apricot (Fr.) 20 cs.; bay (o. B.W.I. Is.) 7 cs.; bergamot (It.) 3 cs.; caraway (Neth.) 2 dm.; citronella (Java) 4 dm.; geranium (Fr.) 2 dm.; lavender (Fr.) 2 cs.; lemon (It.) 72 cs.; lime (o. B.W.I. Is.) 8 cs.; orange (B.W.I.) 2 cs., (It.) 1 cs.; peppermint (U.S.) 2 dm., 3 cs.; pine wood (Ger.) 1 cs.; rose (Fr.) 1 cs.; rosemary (Sp.) 5 cs.; sandalwood (Ger.) 1 dm.; sassafras (U.S.) 7 cs.; spearmint (U.S.) 1 cs.; undescribed (Ger.) 3 cs., (Neth.) 1 cs., (U.S.) 2 cs.

### Pharmaceutical Chemicals, etc.

ALTHOUGH showing a further fall in value cream of tartar seems to be much steadier and there is more interest shown by buyers. Citric and tartaric acids are unchanged and are still rather quiet. In other respects the market is also unchanged, with business remaining generally quiet.

ASPRIN.—A moderate business is reported, with the market holding steady: home trade, 2s. 9d. to 2s. 11d. per lb. as to quantity; export to Colonies and British Possessions, ten cwt., 2s. 8d. up to 2s. 9 $\frac{1}{2}$ d. per lb. for small parcels; export to other destinations, about 3d. per lb. more Home and Continental producers quoting level rates.

BROMIDES.—There is nothing of interest to report in this market; quoted prices are holding while business is restricted: dealers quote ammonium, about 1s. 9d.; potassium, B.P. crystals, 1s. 5d.; granular, about 1s. 5d.; sodium, B.P., about 1s. 8d. per lb. for quantities. Home makers are offering at competitive prices.

CALCUM LACTATE is steady but business remains slow: quantities, 1s. 1 $\frac{1}{2}$ d. up to 1s. 3d. per lb. for small lots.

CHLOR HYDRATE (duty-paid crystals) from home makers lead the market at 2s. 11 $\frac{1}{2}$ d. to 2s. 1 $\frac{1}{2}$ d. per lb. as to quantity; foreign on spot, about 3s. 3d. per lb.

CITRATES.—The following is the new scale of prices issued by makers:—

	Under 4 lb.	4 lb. and under 7 lb.	7 lb. and under 14 lb.	14 lb. and under 28 lb.	Not less than 28 lb.
Ferri et ammon. citras B.P.	s. d.	s. d.	s. d.	s. d.	s. d.
Potass. citras B.P. ..	3 2	3 0	2 10	2 8	2 5
Sodii citras, B.P.C. 1911	3 0	2 10	2 8	2 6	2 3
	2 8	2 6	2 4	2 2	1 11

CITRIC ACID (B.P. crystals).—A moderate business is reported during the week, with the tone keeping fairly steady and values about unchanged at 1s. 6d. to 1s. 6 $\frac{1}{2}$ d. per lb., less 5 per cent., for foreign material. English makers quote 1s. 6 $\frac{1}{2}$ d. per lb., less 5 per cent.

CREAM OF TARTAR is at lower rates, with values at about 3s. 6d. to 3s. 8s. per cwt., less 2 $\frac{1}{2}$  per cent. for foreign material. Business, although by no means active, has been better with current prices of interest to buyers. There are indications of a firmer undertone on the Continent, but so far, this has not affected the position here. English makers quote 89s. per cwt., less 2 $\frac{1}{2}$  per cent.

CRESOSES CARBONATE is offering on spot at about 5s. 9d. to 6s. 3d. per lb. as to quantity; business limited.

**EMETINE SALTS.**—Makers' prices have been reduced and are as follows: Emetine pur., 105s. per oz.; emetine bismuth iodide, 32s. per oz.; emetine hydrobromide, 61s. 3d. per oz.; emetine hydrochloride, B.P.C., 61s. 3d. per oz.

**LACTIC ACID (B.P.).**—The agreed prices of 1s. 11d. to 2s. 1d. per lb. as to quantity continue; business is small.

**METHYL SALICYLATE (B.P.).**—Unchanged as quoted by makers and dealers at 1s. 3d. to 1s. 5d. per lb. as to quantity; the demand has been satisfactory.

**PARAFORMALDEHYDE** is called for now and again; as quoted the market is easy at 1s. 6½d. to 1s. 7½d. per lb. for 100 per cent. powder in kegs.

**PHENACETIN.**—Business has been difficult and there has been some second-hand stuff on the market: crystals, 3s. 8d. to 3s. 10½d. per lb., with powder 1½d. per lb. more.

**PHENAZONE.**—Quoted prices are holding, while business is limited in volume: crystals, 6s. 11d. to 7s. 3½d. per lb. as to quantity, with powder 1½d. per lb. more.

**PHENOLPHTHALEIN** continues to be quoted on spot at 5s. 11d. to 6s. 1½d. per lb. as to quantity; business is fair.

**POTASSIUM IODIDE.**—The following is the new scale of prices issued by makers for B.P. cryst. or gran.:—

1 lb. and under 4 lb.	4 lb. and under 7 lb.	7 lb. and under 14 lb.	14 lb.	28 lb.	112 lb.
s. d. 19 0	s. d. 18 3	s. d. 17 9	s. d. 17 2	s. d. 16 11	s. d. 16 8

**SALICYLIC ACID (B.P.).**—Quoted by home makers at 1s. 5d. to 1s. 8d. per lb.; foreign material is not offering.

**SULPHONAL** remains dull and is unsteady as quoted on spot at 10s. 1d. to 11s. 2d. per lb. as to quantity.

**TANNIC ACID (B.P. leviss)** is offering on spot at about 2s. 8d. per lb. for quantities in kegs; small parcels, about 3s. per lb.

**TARTARIC ACID (B.P. crystals).**—There is little fresh news to report here: the spot value of foreign is holding at 1s. 0½d. per lb. for quantities, while business is restricted. The slightly better tone in cream of tartar should be reflected here in due course. English makers quote 1s. 1d. per lb., less 5 per cent.

**THYMOL** continues unsettled, with synthetic in the region of 7s. 6d. to 7s. 9d. per lb. as to quantity.

### Industrial Chemicals, etc.

*London, August 13.*

**SUBDUED** markets in most quarters. There is, however, no indication of any general break in values, although price-cutting is noticeable in some instances. **ACETIC ACID** continues steady at the new controlled prices reported last week: 80 per cent. technical, £36 5s.; 80 per cent. pure £57 5s. per ton in barrels; glacial, pharmaceutical, 99 to 100 per cent., £53; glacial, in barrels, £47 per ton delivered U.K. **AMMONIUM CHLORIDE** is steady on a slow market: grey galvanising, £21 7s. 6d. per ton, in casks, ex store, and less for contracts. **ARSENIC.**—The position is virtually unchanged and only a limited demand is reported for white Cornish 99 per cent., the quotation being at £15 15s. per ton f.o.r. mines. Mexican high-grade is worth about £16 15s. c.i.f. Liverpool. **COPPER SULPHATE.**—The export demand has remained on the slow side, although the time is now getting near when a little more interest might be anticipated against next season's requirements. F.o.b. terms for casks for export, less 5 per cent., stand at about £23 per ton. **POTASSIUM CARBONATE** is rather easy on a slow market as quoted by dealers: 90 to 92 per cent., £23 10s.; 95 to 98 per cent., £25 10s. per ton, in casks, ex store; slightly less for contracts. **POTASSIUM PRUSSIATE** is steady, but business is only small: yellow, £65 10s. to £65 10s. per ton; single casks, 7d.; small parcels, 7½d. per lb. ex store. **SODIUM ACETATE** is quiet and prices are competitive: fair quantities, about £19 10s. per ton, in casks, ex store. **SODIUM CHLORATE** remains dull, with quantities at about £24 10s. per ton, and smaller lots at about 3½d. per lb. ex store. **SODIUM HYPO-SULPHITE** has been in fair demand of late: dealers quote pea crystals in one-cwt. kegs at about £15; commercial quality, £9 10s. per ton, in casks, ex store; makers' price for pure crystals to home consumers on contract, £15 per ton, carriage paid to buyer's works. **SODIUM PRUSSIATE** is steady on a quiet market: quantities, 4½d. to 5d.; small parcels, about 5½d. per lb. ex store. **SULPHUR.**—There is a steady tone to the market with a fair demand, and American crude ranges from £5 12s. 6d. to £5 17s. 6d. per ton, while Sicilian flowers are called £11 5s., refined ground £10, and roll £8 15s., all c.i.f. to arrive.

**COAL-TAR PRODUCTS, ETC.**—This market continues generally quiet, while quoted values are mostly holding steady. Aniline oil and salt are slightly easier. Carbolic acid crystals are unchanged but the demand is poor. ANILINE OIL is slightly cheaper this week at the quoted figure of £4 1d. per lb., packages extra, carriage paid. ANILINE SALT

is also at the lower figure of 3½d. per lb., packages extra, carriage paid. **BETANAPHTHOL** is unchanged with the market dull: quantities, 9d. per lb. carriage paid. **CARBOLIC ACID CRYSTALS.**—Makers' quoted rates are unchanged, with fifteen-ton lots at 6½d. to 7d.; 25 to 50-ton lots, 6½d. to 6½d. per lb., carriage paid or f.o.b., in drums with overcasks. Crude carbolic 60's is cheaper at 2s. to 2s. 2d. per gallon naked at works. **CREOSOTE OIL** remains quiet so far as export inquiry is concerned: quoted at 4½d. to 4½d. per gallon f.o.b. in bulk quantities; home trade price is about 4d. to 4½d. per gallon at works. **CRESYLIC ACID** is in slow demand, with makers' prices unchanged: dark 95 per cent., 1s. 6d. to 1s. 7d.; pale 97 to 99 per cent., 1s. 10d. to 2s.; refined, about 2s. 6d. per gallon. **NAPHTHALENE** remains quiet, with prices for flakes and balls at about £14 10s. to £14 12s. 6d. per ton in cases ex wharf. **METHYL ALCOHOL** in ton lots is about £42 in drums ex store, with much cheaper prices for large quantities. **PYRIDINE** is nominal on a neglected market at 4s. to 4s. 6d. per gallon f.o.b. **TOLUOL** is steady but the demand is not good: commercial 90's, 1s. 10d.; pure, about 2s. 2d. per gallon ex works.

### Fixed Oils, etc.

**QUIET** markets continue to be reported in most products. Palm oils are steadier and in better call. Linseed oil shows a good recovery, while turpentine is still weakening. **ACID OILS.**—Market is dull and rather easier: coconut and/or palm kernel, 28s.; groundnut, 26s.; soya, 21s. spot. **CASTOR.**—Market remains quiet with values unchanged: pharmaceutical, 44s. 6d.; first pressings, 39s. 6d.; second pressings, 37s. spot. **COCONUT.**—Business is poor; market rather unsteady: deodorised, spot, 39s.; Ceylon, 28s. c.i.f. **COTTON** is quiet but values are holding steady: deodorised, 36s. 6d.; common edible, 35s.; soapmaking, 35s. 6d.; crude, 29s. 6d. spot. **GROUNDNUT** is quiet but steady: deodorised, spot, 39s.; crude Oriental, 32s. 6d. c.i.f. **PALM KERNEL.**—Prices are unchanged and market very quiet: deodorised, 38s.; crude, 30s. 9d. spot. **PALM.**—Prices are being maintained on a steady market and business has been a little better: Lagos, 24s.; softs, 23s. 6d.; mediums, 23s. 6d.; hards, 24s. 6d.; bleached, 26s. 6d. spot. **RAPE.**—Prices are slightly better with the market quiet: refined, 39s.; crude, 37s. 6d. spot. **SOYA** is somewhat easier on a slack market: deodorised, 36s.; crude, 28s. spot. **LINSEED** (raw, naked).—Prices for all positions show a good recovery on the week and the market closes with a healthy and rather firm tone: on spot, 37s.; August, 33s. 10½d.; September-December, 33s.; January-April, 31s. 1½d. Boiled oil, on spot, 40s. 3d. **TURPENTINE.**—The market has shown further weakness, in sympathy with weaker American cable advices, and there has been a more reluctant demand, while additional shipments were advised from America. Prices were about 33s. 3d. for spot, 34s. for September-December, and 35s. 9d. for January-April. Last week's deliveries were 1,604 barrels, making a total since January 1 of 62,296 barrels, as against 60,482 barrels for the same period last year. Stocks were returned at 15,993 barrels, which, together with the quantities landing and afloat at last week's close, makes the total London visible supply 25,703 barrels, which compares with 25,995 barrels at the same date last year. **RESIN.**—American receipts continued on a fair scale, but the general demand was poor, this resulting in another increase in stocks. Prices here have declined steadily to lower levels without bringing much demand from buyers. C.i.f. terms were as follows: American B/D 10s. 6½d. to 10s. 8½d., E/I 11s., K/M 11s. 1d. to 11s. 3½d., N 12s. 4½d., WG 13s. 5d., and WW 15s. 3½d. French was also weaker in sympathy but neglected except for top grades, of, which WW was quoted 12s. 6d. c.i.f. per cwt. **WOOD.**—Hankow in barrels on spot is offering at 48s.; market is dull.

**LUBRICATING, MINERAL AND BURNING OILS, ETC.**—Depressed markets continue to be reported in all directions. Quoted prices show little change, but in a number of instances the markets are unsteady. **BENZOL** is in good demand on a steady market; standard motor 90's, country, 1s. 5d. to 1s. 5½d.; London, 1s. 6½d. to 1s. 7d. per gallon, ex works, in tank wagons. **FUEL OIL** continues quiet with prices unchanged; 950 gravity, £3 5s.; 890 gravity, £3 17s. 6d. per ton, ex tank; cheaper forward. **PARAFFIN OILS** are firm and unchanged; American standard white, 1s.; water-white, 1s. 1d. per gallon, barrels free, ex wharf. **PARAFFIN WAX AND SCALE.**—Wax is quiet with prices easy at from 1½d. to 5d. per lb., according to melting point, in bags. Scale for shipment is offered at about £12 2s. 6d. per ton, c.i.f. port. **WHITE OILS** are dull and unchanged. Special No. 1, £224 7s. 6d.; No. 1, £23 7s. 6d.; No. 3 half-white, £20 7s. 6d.; No. 4, half-white, £18 7s. 6d. per ton, drums and barrels free, ex wharf. **SOLVENT NAPHTHAS.**—90 to 160 are steady at 1s. 2d. per gallon, naked oil at works; heavy, 90 to 190, are unchanged and dull at 1s. 1d. per gallon, naked at works.



Letters for this section should be written on one side of the paper only. Correspondents may adopt an assumed name for purposes of publication, but must in all cases furnish their real name and address to the Editor.

#### Educational Problems

SIR.—Whatever the discussion at the educational meeting of the Cardiff Conference may lead to, it must be evident to most pharmacists that what is required, as you suggest in your editorial article (*C. & D.*, August 2, p. 172), is that the examinations and qualifications shall follow, one after another, in one broad high road to the highest degree, and not, as at present, lead into three separate and distinct tracks which, like parallel straight lines, can never meet. The trouble began long ago when the old Minor and Major examinations were existent. If in those days there had been sufficient foresight to endeavour to confine the first certificate to assistant pharmacists, with the higher one for master men, pharmacy would probably have been in a much better position than it is to-day; unqualified assistants and drug-store proprietors would have been eliminated, and we should have had a definite and established status. As it was, the qualified chemist and druggist obtained a certificate which enabled him to keep an open shop, and that was the ultimate intention of the majority of candidates, so that it was obvious that the greater number of them would not go forward to the higher examination when they had achieved the requisite pass. Whereas with the revised syllabus and improved standard of education we could now have had three examinations as at present, but with the first qualification for assistants, the second for proprietors, and the doctorate for professors and pharmacist directors of laboratories or hospital dispensers. Is it too late to consider something on these lines for the future development of pharmacy? It would certainly go a long way towards bringing about that better state of things for pharmacy and pharmacists which Mr. Humphrey forecasts in his address from the chair.—Yours truly,

FOLLOW ON (12/8).

#### Specie Jars

SIR.—I am a pharmacist's son, and from my early days have gazed into the windows of pharmacists. As a boy (probably about 1897) I was in Manchester, and saw in a window two specie jars, with most uncommon drug names—Urtica and Calendula. I have no recollection of the legends, whether they were indicative of herbal species or not; I believe the owner was a homoeopathic chemist. I was coming through North Wales on a motor tour about three years ago, and at Corwen I saw one that interested me greatly; the coat of arms was supported by a kangaroo (or kangaroos), and bore the inscription, "Floreat Hobarta"; I asked the owner how he came to have this Tasmanian coat of arms on a jar, and I was told that it came from a Welsh town some miles away, some years before.

Yours, etc.,

NEM. INCOG. (13/8).

#### The Keeping of Poisons

SIR.—Mr. Rowsell's question at the August meeting of the Pharmaceutical Society's Council, concerning the keeping of poisons, was well timed, and chemists generally will be interested to read the president's statement to the effect that custom sanctions the keeping of different scheduled poisons on the three different systems (*C. & D.*, August 9, p. 200). It is not without significance, however, that Mr. Melhuish refrained from expressing any definite opinion on the subject. A possible reason for this may be a feeling that the Home Office supports the views of its inspectors who insist

that all scheduled poisons ought to be kept in the poisons cupboard. But this interpretation seems to me quite beside the mark, and not justified by the wording of the regulations. It appears to be dictated by imaginations which have become so distorted by obsessions regarding the drugs affected by the Dangerous Drugs Acts that there is a danger of the Home Office inspectors allowing their search for more or less imaginary offences by chemists to convert them into something approximating to the old-time witch-finders. To keep all scheduled poisons in "a room or cupboard set apart for dangerous articles" may seem a not unreasonable precaution; but it should only require a brief survey of the Poisons Schedule to convince anyone of the impracticability of the proposal, particularly if the "room or cupboard" is to be the "locked receptacle" in which so-called "dangerous drugs" must be stored. It is to be hoped that president Melhuish's reply will be brought to the attention of the Home Office, and that the too-busy inspectors will receive no further encouragement in their giddy career as creators of imaginary offences by conscientious and hard-working chemists.—Yours faithfully,

PHARMACEUTIST (12/8).

#### Miscellaneous Inquiries

**When samples are sent particulars should be supplied to us as to their origin, what they are, what they are used for, and how. We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas for them.**

**W. W. B.—WHITFIELD'S OINTMENT.**—A formula for Whitfield's ointment is given in "Pharmaceutical Formulas" (p. 660). This is the Royal Northern Hospital Pharmacopœia formula. Various hospitals have formulas for a similar ointment under other titles, e.g., ung. ac. salicyl. co., London Hospital Pharm. The originator of this ointment is Dr. Arthur Whitfield, consulting physician to the Skin Department of King's College Hospital, London. The ointment bearing his name was first introduced in the year 1922.

**Paste (12/7).**—An adhesive of the type you require can be made as follows:—

Starch	...	...	...	...	3 oz.
Dextrin	...	...	...	...	1½ oz.
Water	...	...	...	...	5 oz.
Carbolic acid	...	...	...	...	15 drops

#### Retrospect of Fifty Years Ago

Reprinted from  
"The Chemist and Druggist," August 15, 1880

Asa Gray

The "New York Times," in a recent issue, says: "Professor Asa Gray, whose name has lately been brought prominently before the public by the publication of his lectures at Yale College on 'Science and Religion,' will soon reach his seventieth birthday, having been born in Paris, Oneida County, New York, November 18, 1810. . . . Among his more elaborate works on botany are 'Genera of the Plants of the United States,' 'Manual of the Botany of the Northern United States,' and 'Botany of the United States Pacific Exploring Expedition under Captain Wilkes,' all of which appeared years ago. In connection with Dr. John Torrey, he began in 1838 the publication of a 'Flora of North America,' which was continued for a time and then suspended. While Dr. Gray's larger works have put him in the front rank of living botanists, his schoolbooks on botany have made his name familiar throughout the United States and Europe."

Owing to pressure on space, this week's instalment of the *C. & D. Commercial Compendium* is held over.

AUGUST 16, 1930

THE CHEMIST AND DRUGGIST  
SUPPLEMENT

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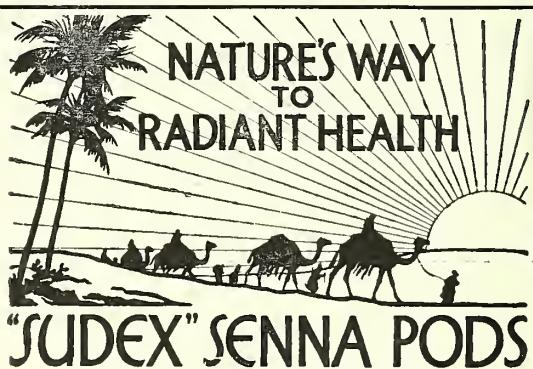


**Hyposulphite of Soda** *Pea Crystals*  
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**Precipitated Sulphur**  
**WEED KILLER**  
*A list of our general Technical Chemicals sent on application*

# SOLAZZI *The Chemist's Brand* LIQUORICE JUICE

**SOLAZZI JUICE IS GUARANTEED TO CONSIST ENTIRELY OF THE CONDENSED EXTRACT OF FINEST CALABRIAN LICORICE ROOT WITHOUT ANY ADMIXTURE WHATEVER**

Should any enquiry as to the composition of SOLAZZI be received from the public, Chemists are asked to emphasise the fact that SOLAZZI is not included in the category of Secret Remedies, and that the accompanying guarantee obtains with every parcel.



Cleanse the blood and remove all poisonous waste from the system smoothly, naturally, and with perfect safety. Indispensable in all cases of Constipation, Indigestion, Flatulence, Liver Disorders, Depression, Debility, Skin Blemishes, Boils, and all Stomach Troubles. An Ideal Natural Laxative for Children.

That is the message to the public broadcast in the great National Daily Papers. A lucrative and "live" selling line to Chemists and excellent value to the public

Packed in large cartons to sell at **6 D.**  
**48/- per Gross.** **25/- per half-gross.**  
With Showcards, dummy Cartons, and literature.

*Carriage paid, showing*  
**50% PROFIT ON COST.**  
**ORDER THROUGH YOUR WHOLESALER.**  
Split bulk also supplied at competitive prices.

THE SUDEX CO., 6 Fen Court, LONDON, E.C.3

**"VITAMIN TESTED YEAST"**  
*Yeast specially prepared for medicinal purposes.*

GUARANTEED ABSOLUTELY PURE.  
MIDGLEY & PARKINSON, LTD.,  
WARREN WORKS, PUDSEY, LEEDS.

**"Superlin" Disinfectant**  
*Wrigley, Paterson & Co., Ltd.,  
St. John's Rd., Isleworth, Middx.*  
PHONE: HOUNSLAW 2604

**RIPPIN FOR TRAGACANTH**  
*CALL AND INSPECT OUR SAMPLES.*

Phone: ROYAL 2165.  
**A.J. RIPPIN, Ltd., 17 Harp Lane, E.C.3**

# Johnsons of Hendon

*for*

<b>EMULSIONS.</b>	<b>SYRUPS.</b>
<b>INFUSIONS.</b>	<b>LINIMENTS.</b>
<b>OINTMENTS.</b>	<b>DECOCTIONS.</b>
<b>TINCTURES.</b>	<b>LIQUID EXTRACTS.</b>

*also*

**JOHNSONS LYSOL** in packed or bulk supplies

**JOHNSON & SONS**

*Manufacturing Chemists LTD.*

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Manchester Office : 12 QUEEN ST., DEANSGATE

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BLANDFIELD WORKS : 25 CHRISTOPHER STREET : 32 & 34 VIRGINIA STREET  
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ESTABLISHED 1827

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## PURE LIQUORICE JUICE

Made by the largest Liquorice Manufacturers in the World, a Pure, concentrated Extract of the Richest Root. Contains no added substance. Very Soluble. Smooth to the tongue and entirely free from grit. A well-shaped, attractive stick, carefully made under supervision of British staff. Not a sweetmeat, but a high-class Pharmaceutical article.

*Apollo is very rich in Glycyrrhizin.*

In 4 lb. CARTONS, 28 in a case. No charge for Bay Leaves.

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*Established 1857.*

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**WHOLESALE ONLY**

**CHEMICALS**  
**TECHNICAL**  
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**SPECIAL**  
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# **EPHEDRINE "SANDOZ"**

**Please apply for particulars**

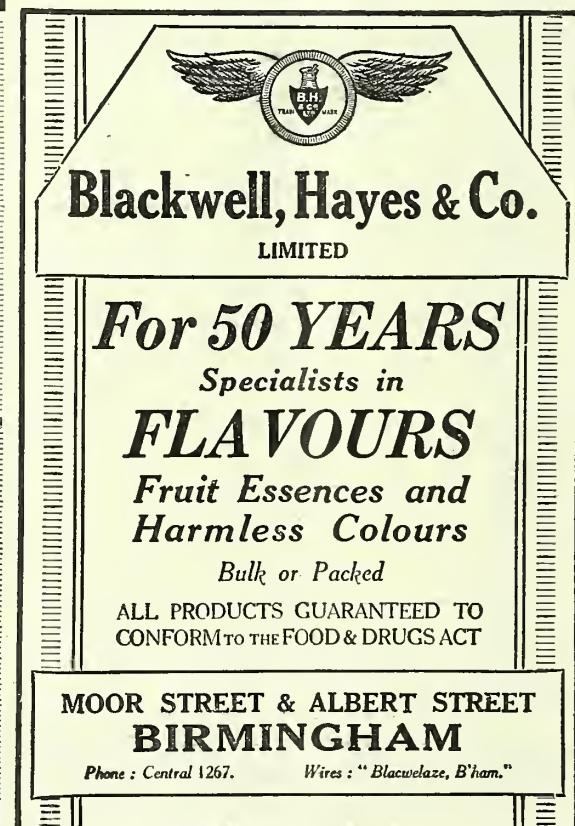
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## **BULK OR PACKED**

*We suggest it would be decidedly to your advantage to obtain sample and quotation from:*

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# THINKING OF OINTMENTS?

by specifying TEST  
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**COLD CREAM**

**BORIC  
OINTMENT**  
**ZINC  
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**CATAPLASMA KAOLIN**  
B.P.C.

**GALL and OPIUM**  
OINTMENT  
ETC., ETC.

Samples post free.

'Phone : Hop 2422 (2 lines).

**QUALITY IS THE THING** • **"SPUN" IS THE NAME**  
that distinguishes the best from all others.

## "SPUN" OINTMENTS

may be ordered through :—

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IN BOTTLES—ALL STRENGTHS  
*Exceptional Stability & Purity*  
ATTRACTIVE TERMS

## GENOXIDE LIMITED, LUTON

# Compound Syrup of Hypophosphites

TRADE "FELLOWS" MARK

The ideas supported by the medical world to-day on the therapeutic value of calcium and other mineral salts were embodied 60 years ago in "FELLOWS."

The only preparation of its kind then, "FELLOWS" still stands alone for its tonic qualities in the treatment of run-down conditions of health and the many forms of anaemia and nervous ailments which so often result.

"FELLOWS" has not been successfully imitated. It is recommended by doctors in more than 58 countries.

Display "FELLOWS" in your windows. It is advertised in the leading magazines and daily newspapers.



Fellows Medical Manufacturing Co., Inc.

26 Christopher Street

New York City, N.Y.

## *The Profit's the thing*

A steady profit is assured if you stock

## CONSTIPON

The demand is good, and sales are increasing daily.

TABLETS per box 3d., 6d. & 1/-

Stocked by Scottish Wholesale Druggists.

CONSTIPON  
65 West Regent Street, Glasgow.

## SEASICKNESS IS POSITIVELY PREVENTED BY SEAJOY PLASTER

REGD.

SeaJoy Plasters are commanding an ever-increasing demand on account of their efficacy in preventing all forms of Travel Sickness.

A Profitable and Quick Seller. PRICE 3/-

From all Wholesale Agents or direct from

The SEAJOY CO. Putney, S.W.15  
Telephone - - PUTNEY 0414.

# 'MONSOON BALM'

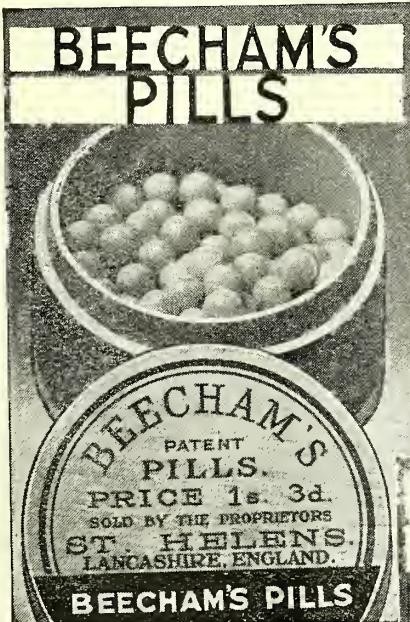
The GREAT EASTERN REMEDY for INSECT BITES BRUISES NEURITIS HEADACHE RHEUMATISM AND CATARRH

*Creates new customers*

The response to the national advertising of this wonderfully effective analgesic-antiseptic has been remarkable. To obtain the full advantage locally—make use of the Monsoon Balm Showcards and Window Display material. Introductory orders are accepted for FIRST ORDERS ONLY at 12/6 per dozen - - - Selling at 24/-

WRITE FOR LEAFLET, WINDOW SHOW AND FREE SAMPLE FOR PERSONAL USE—  
**MONSOON BALM (Britain) Ltd.** 329 High Holborn, London, W.C.1  
PHONE: HOLBORN 4821

# EVERY CHEMIST SHOULD STOCK THESE THREE LINES



BEECHAM-VENO  
GOODS ARE  
EXCELLENT.



THEY'RE  
REAL  
PROFIT  
MAKERS.



BEECHAM - VENO advertising has built up an immense buying force in the Drug Trade, and such lines as BEECHAM'S PILLS, Dr. CASSELL'S TABLETS and GERMOLENE, are looked upon as being BEST SELLERS. Each line is backed up by continuous advertising in the National and Weekly Press and the Monthly Magazines, the total appropriation amounting to some £500,000. Your daily profits can be increased by stocking and keeping before the public Beecham-Veno lines. DISPLAY THEM in your window—your shop—your counter. They're easy to handle, and good profits result from their sale.

**BEECHAM - VENO CENTRAL DISTRIBUTING DEPOT**  
CHESTER RD. MANCHESTER.

# Collosol Zinc Cream

The NEW elegant packing of this valuable medicated cosmetic makes a wide-spread appeal for medical, nursery and toilet use.

Its selling attraction is enhanced by supplies of samples for counter distribution.

A most remunerative proposition to the retailer.



Sells at  
**1/3**  
per tube

A display container of 1 doz. tubes.

THE CROOKES LABORATORIES  
(BRITISH COLLOIDS, LTD.)

22 CHENIES STREET, LONDON, W.C.1.

Telephone:  
Museum 3663, 3697 & 5757



**HOME  
MADE  
BEER**  
from  
**MASON'S  
EXTRACT OF HERBS**

THE NATIONAL BEVERAGE :  
SELLS FREELY EVERYWHERE

UNIQUE DISPLAY MATERIAL  
EASILY ARRANGED

Folder Showcard. Half-pint Mug.  
Imitation Bottle of Beer, &c.

WINDOW SHOW ALLOWANCE  
WITH OPENING ORDER

Apply to NEWBALL & MASON, LTD.,  
Nottingham, for particulars.

**GOOD IT'S MASON'S**

**Liq. Paraff. Alb. B.P.  
Sp. Gr. .890**  
OUR SPECIALTY  
THE PUREST PHARMACEUTICAL OIL  
**HIGH VISCOSITY**

White Oils

White & Yellow Jellies

Paraffin Wax

Large or small quantities.  
Ask for samples and state  
your requirements.

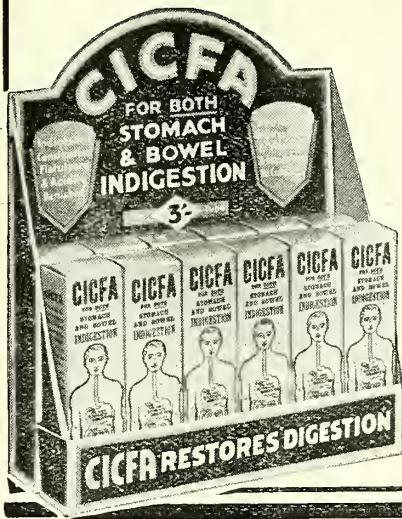
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CYONA,  
DIDCOT



**CYONA**  
CO., LTD.  
WHITE OILS DEPARTMENT,  
DIDCOT  
Berks

# KEEP CICFA ON YOUR COUNTER IN THESE ATTRACTIVE CONTAINERS

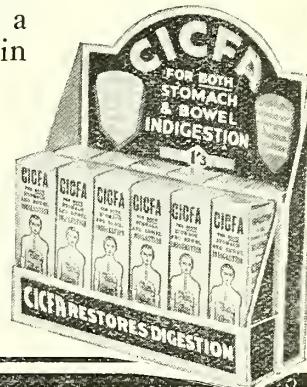


This reliable and well-advertised remedy may be confidently stocked by you, because our steady advertising in the big national newspapers ensures gradually increasing sales.

Make sure that you obtain your share of business by keeping a stock of Cicfa, and showing it in these attractive little cases.

*Order from your Wholesaler or direct from:*

**Capsuloids (1909) Ltd.**  
8A DUKE STREET,  
Manchester Sq., London, W.1  
PRICE LIST ON APPLICATION



*May we call your*

*attention to:—*

## PETROLAX

(BROWN CARTON)

(REGISTERED TRADE MARK)

THE IDEAL PARAFFIN AND AGAR-AGAR EMULSION

## PETROLAX COMPOUND

(RED CARTON)

A COMBINATION OF PETROLAX AND PHENOLPHTHALEIN

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(BLUE CARTON)

A COMBINATION OF PETROLAX AND MIST. MAGNES. HYDROXIDI

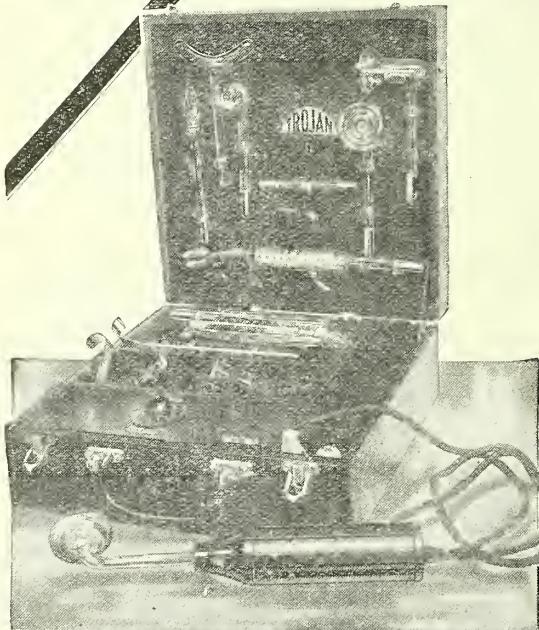
*Note the Prices:—RETAIL 2/- (Nominal  $\frac{1}{2}$ lb.) 14/- doz.  
" 3/6 ( " 1lb.) 24/- "  
" 6/- ( " 2lb.) 44/- "*

*Stocked by the leading Patent Houses, or direct from the SOLE MANUFACTURERS:—*

**C. R. HARKER, STAGG & MORGAN, LTD.**  
Mile End, London, E.1



# SELL "HEALTH" — it's profitable



Electricity as an aid to Health and Beauty is being appreciated more and more every day.

So here is a good opportunity to increase your sales. Sell Health, through these popular Trojan High Frequency Outfits.

They are a profitable line for any progressive Chemist. Ask us to tell you all about them and to explain our novel selling scheme.

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Telephone: Wolverhampton 1001.  
Telegrams: "Shaw Wolverhampton."

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Telephone: Central 1814.

MANCHESTER - 5 Orme Buildings, Parsonage  
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*Do not place your contract  
for*

## Malt & Oil

*before obtaining our prices.*

**THE BRITISH DIAMALT CO.**

Malt Product Manufacturers,

**SAWBRIDGEWORTH - HERTS.**

## DRIED MILK

Large buyers of Full Cream, Half Cream, Separated, Milk Sugar, Whey Powder, Soluble Milk Casein, are invited to apply for samples and quotations, stating probable requirements. Eight Creameries in Dorset, Somerset and Wilts.

PRIDEAUX'S LTD., MOTCOMBE, SHAFTESBURY, DORSET

## BALLOONS

PRINTED with your  
ADVERTISEMENT  
or BLOCK.

COMBS, PRESENTS, LEATHER GOODS, NOVELTIES, ETC,

Deal from the oldest established firm in the Trade:  
"STANBERTS," STANBERT HOUSE, (Dept. "P"),  
377 KENNINGTON ROAD, S.E.11 Reliance 1762  
STOCK "JAZZO," THE MAGIC DANCE FLOOR POLISH.

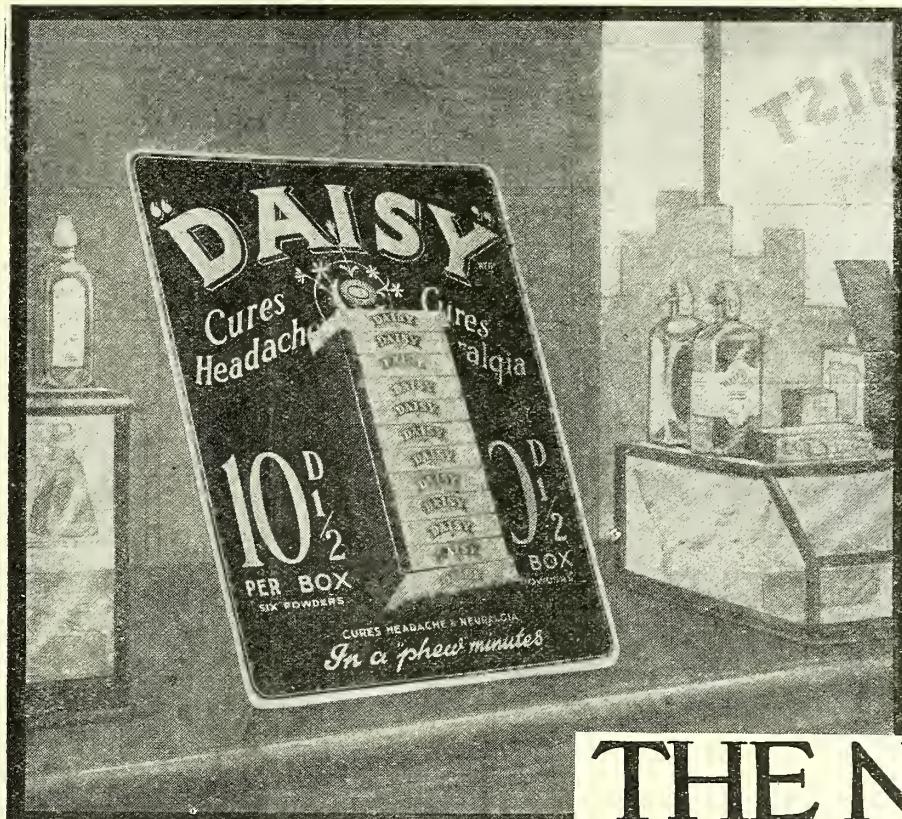
The Best and  
Safest Infants'  
Medicine of  
over 130 years'  
standing.

**ATKINSON & BARKER'S  
INFANTS' PRESERVATIVE**

Does not  
contain  
any  
Scheduled  
Poison.

ESTABLISHED 1793.

ROBERT BARKER & SON, LTD., 13 WESLEY STREET, C. on M., MANCHESTER



## THE NEW SEMI-AUTOMATIC CONTAINER PROMOTES DAISY SALES

### P.A.T.A. PRICES

$10\frac{1}{2}$ d.

Boxes containing  
6 powders

$7/10\frac{1}{2}$

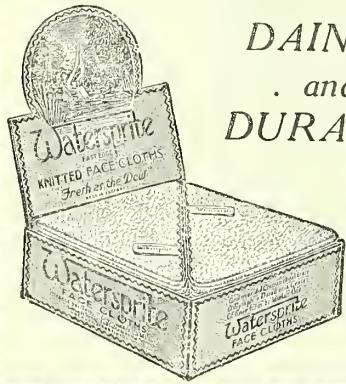
Per dozen boxes

Daisy Powders can now be displayed in the novel form illustrated above. This new device is a combination of an attractive Show Card and a Semi-Automatic Container which holds one dozen  $10\frac{1}{2}$ d. Packets. Each time a packet is withdrawn from the bottom, another packet slides into position, ready to be handed to the next customer. Neat and convenient, the Semi-Automatic Container links up the shop with Daisy advertising, catches the eye of chance customers, and helps to increase sales. A Daisy Showcard Container will be sent post free with each order for One dozen packets

**DAISY LTD. HORSFORTH, LEEDS**

THESE CHARMING CLOTHS, BEING SPECIALLY KNITTED, HAVE JUST SUFFICIENT ELASTICITY TO RENDER THEM DELIGHTFULLY SOFT IN USE, AND APPEAL INSTANTLY TO DISCRIMINATING BUYERS.

**DELIGHTFULLY ATTRACTIVE  
DISPLAY CARTONS**  
PRINTED IN SEVEN COLOURS  
CONTAINING TWO DOZEN.



**DAINTY  
. and .  
DURABLE.**

Sole Manufacturers :

**SOLPORT**  
BROTHERS LIMITED

184-192 GOSWELL ROAD  
LONDON - - E.C.1

FROM ALL WHOLESALERS.

IF ANY DIFFICULTY IN OBTAINING SUPPLIES, WRITE US DIRECT.

We Are Still Executing Orders  
for the  
**LOCARNO** MEDICATED  
TOILET ROLL

**WHY!!!**

BECAUSE it is ONLY OBTAINABLE  
FROM THE CHEMIST

CONTAINS  
650 SHEETS  
PURE WHITE  
SULPHITE  
PAPER.  
12 oz. ROLLS.

**COSTS**  
3.  
SELLS at  
6.  
D.

FREE  
DELIVERY.  
PACKED IN  
CARTONS.  
SAMPLE  
ROLL FREE.

Sole Manufacturers :

**J. RUTHERFORD & Co.**  
LIMITED

VICTORIA PAPER MILLS  
VICTORIA ROAD  
HOLLOWAY, LONDON, N.7

Contractors to H.M. Government.

# Watersprite FACE CLOTHS

MADE IN ENGLAND

## POPULAR PRICES.

### WHITE, with Coloured Borders.

G220.	Overlocked, Assorted Colours ..	..	..	4/-	doz.
G221.	"	and Cross-stitched	"	4/6	"
G222.	Shell-stitched, Assorted Colours ..	..	..	5/3	"
G223.	"	"	and Cross-stitched	5/9	"

### COLOURED, with Coloured Borders.

G224.	Overlocked, Assorted Colours, and Cross-stitched	5/6	doz.
G225.	Shell-stitched "	6/-	"

### SPECIAL ASSORTMENTS.

G226.	Cartons containing 4 each of above 6 Numbers	10/6	per carton.
G227.	"	6 "	G220, 222, 223, 224 10/3 "

184-192 GOSWELL ROAD  
LONDON - - E.C.1

FROM ALL WHOLESALERS.

IF ANY DIFFICULTY IN OBTAINING SUPPLIES, WRITE US DIRECT.

*Sells like hot cakes!*



**“CLEAR CORN”**

— 7½ D.—

GUARANTEED  
CORN REMOVER

Hermetically sealed —  
no trouble with leakers

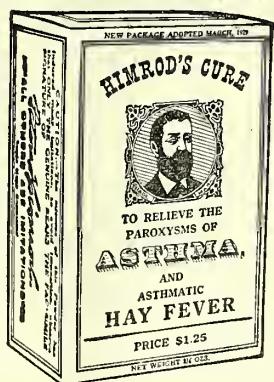
ORDER. 3 doz. and 3 bonus; Cost 13/6—Profit 10/10½  
ORDER. 6 doz. and 9 bonus, Cost 27/-—Profit 23/7½

CARRIAGE PAID—PACKING FREE  
DISPLAY MATERIAL—SHOWCARD AND TWIN-TIER  
OUTER CONTAINING 12

Order Direct or through your wholesaler

**KOF-OH Co., Ltd.**

MANUFACTURING CHEMISTS  
EVERTON - LIVERPOOL



**Profitable,  
Repeat Business and  
Satisfied Customers**

Standard For Over 60 Years

**Himrod Manufacturing Co.**  
HOBOKEN, N. J., U. S. A.

—Order From Your Service Jobber—

**Are you sharing in  
the success of this  
popular line?**

Sales of the Izal Toilet Roll have exceeded all expectations and continue to grow and grow. See that your stocks are sufficient and get your share of the sales of this successful line. Advertised regularly in National Press and all the popular Women's Magazines.

Terms from  
**NEWTON,  
CHAMBERS  
& Co., Ltd.**  
Thorncliffe, Sheffield

**IZAL TOILET ROLL**  
Medicated with Izal  
Stock Izal also—the most reliable  
disinfectant known to science.

Fixed price to public.

Z61a

**THEY catch flies  
YOU catch profits**



**- THE WORLD'S BEST FLY-CATCHER**

The Wasp Flyband way is the quickest, surest and most hygienic way of destroying flies. Every customer satisfied. Stock always fresh and saleable. Profits good and brisk. Order your supplies NOW.

Manufactured by  
**F. W. HAMPSHIRE & CO. (1927), LTD.**  
SUNNYDALE WORKS DERBY.

**Best sellers** The  
public is asking  
for **ZEAL**  
**CLINICAL**  
**THERMOMETERS**  
because they are:-

**GUARANTEED TO  
STAY ACCURATE  
CONSISTENTLY  
ADVERTISED**



# DRY BOTTLE CAPS

Superfine  
Self-sealing  
Distinctive

All sizes and  
colours, Clear  
& Opaque

**"ADAPTOCAPS."**



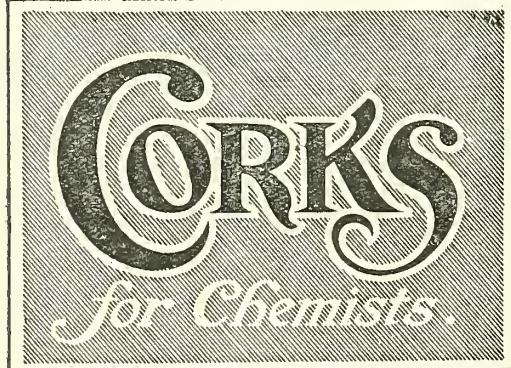
An unrivalled  
British Product

Special low rates  
for large contracts

**The London Capsule Co., Empire Works, Mitcham Road, CROYDON**

'Phone : Thornton Heath 3014.

Australasian Agent—FRANK HAMBRIDGE, 22 Bridge Street, Sydney.



Send us your Enquiries  
and compare our prices.

Wholesale and Export.

**C. OLLEY & SONS, LTD.**

Established 1844.

Camperdown St. and Gt. Alie St., London, E.1  
Tel. No.: Royal 2868. Tel. Ad: "Circumference, Ald, London."

**METALLIC CAPSULES  
FOR ALL KINDS OF BOTTLES AND JARS.**

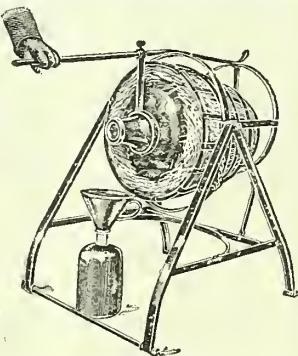
The Tonkin Metallic Capsule Co.  
*Proprietors : C. Olley & Sons, Ltd.*

**CARBOY STAND  
AND TILTER.**

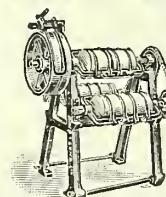
For drawing off small  
quantities of acids, etc.  
from Carboys, with ease  
and safety.

The Carboy can be tipped  
to any position with one  
hand.

R. & H. LEIGH & SONS,  
LIMITED,  
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**"ATLAS"  
BALL GRINDING MILLS**



Porcelain or Silex Lined. Batteries  
of Jars for small quantities.  
Flint Pebbles, Porcelain, Brass,  
Steel or Hardwood Balls, also  
spare Porcelain Jars and Liners  
supplied.

**BRITISH MADE THROUGHOUT**

Specialists in Breaking, Grinding,  
Sifting, Drying, and Mixing Machines.

**HIND & LUND, LTD.**  
**Atlas Works, PRESTON.**

Telegrams : "ATLAS, PRESTON."

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# This £1,000 challenge IS ENCLOSED IN every box!

**TO ALL USERS.**  
each box of Pessaries contains one which is ineffective. There is a false report spread by certain persons who endeavour to mislead the public into believing that every box contains a useless pessary, in some cases even supporting their statements by declaring it is made compulsory by law.  
Rubinstein, Nash & Co., Solicitors, Gray's Inn, London, W.C., are instructed to take proceedings against any person found to be circulating this false report.  
**EVERY RENDELL PESSARY IS, AND ALWAYS HAS BEEN**  
**ABSOLUTELY EFFICACIOUS.**

**W. J. Rendell's "Wife's Friend" Soluble Pessaries.**

The reliability of Rendell's Pessaries is fully set out in  
The Wife's Handbook." 50  
Be sure and look for autograph Trade Mark on the labels to  
prevent disappointment.

W. J. RENDELL, London

Trade Mark

All trading rights  
in reserve

*W. J. Rendell*

## What it means

When a chemist sells Rendell's Pessaries he knows he is offering an article which is backed by a reputation of 50 years. Made under the supervision of qualified chemists, each one can be absolutely relied upon and is fully efficacious. Thus do Rendell's Pessaries justify the confidence of the trade and users alike.

**W. J. RENDELL, LTD.**  
15 CHADWELL STREET  
LONDON, E.C.1

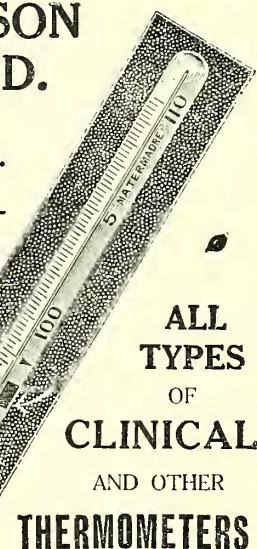
## RENDELL'S for RELIABILITY

**PERKEN, SON  
& CO., LTD.**

Established 1852.

Contractors to H.M.  
Government.

THE  
**"MATER"**  
CLINICAL  
REGD.



ALL  
TYPES  
OF

CLINICAL  
AND OTHER

**THERMOMETERS**

Price List on Application.

94 HATTON GARDEN,  
LONDON, E.C.1

Telephone : 0724 Holborn.

Telegrams : "Optimus, Smith, London."

*There's profit  
in a display of*

**NORVIC**

Regd.

*why  
not  
take  
it?*

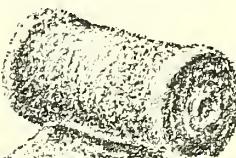
Dependability and quality have  
made "NORVIC" Blue Crepe the  
recognised brand wherever  
crepe bandages are needed. A small  
display will pay you handsomely.

P.A.T.A. PRICES

	2"	2½"	3"	3½"	4"
Cost	12½	15 3	18 3	21 3	24 3
Sell	1.6	1.11	2.3	2.8	3.-

*Stocked by all leading wholesalers*

Sole Manufacturers :—Grout & Co., Ltd., 35 Wood St., E.C.2



**NORVIC**

CREPE BANDAGES

ARE

UNIVERSALLY RECOMMENDED

FOR

VARICOSE VEINS,

WEAK ANKLES,

LEGS, KNEES,

WRISTS, SPRAINS,

AND

GENERAL SUPPORT.

Specially suitable  
for Support in all  
Sports.

**NORVIC**  
FOR THE  
CREPE  
BANDAGE

MADE IN ENGLAND  
SPECIALISTS  
IN MEDICAL SUPPLIES  
AND SURGICAL EQUIPMENT

# **SENSATIONAL PUBLIC RESPONSE TO "SCHOLL" ADVERTISING CAMPAIGN!**



## **FREE OFFER EXTENDED UNTIL AUGUST 23!**



## ANOTHER WEEK FOR BIG BUSINESS

It was only to be expected that such a bold, big-space Advertising Campaign would create a huge demand. But the response from the public has exceeded all expectations! Sales of Dr. Scholl's ZINO-PADS with the Free Offer of a packet of Dr. Scholl's BATH SALTS to each packet of Zino-pads purchased have been truly sensational!

## GREATLY INCREASED ADVERTISING

To allow Chemists to replenish stocks; to allow those Chemists who did not co-operate with "Scholl's" to do so now; to make the most of this great success, it has been decided to extend the Free Offer until August 23rd. More advertising space has been booked to maintain the public demand for this additional week. Dr. Scholl's ZINO WEEK becomes a fortnight!

## ADDITIONAL WINDOW STREAMER

A striking Window Streamer, announcing the extension, has been rushed through to be added to your window display. Orders for replenishment supplies of Dr. Scholl's Zino-pads and requests for further Free Presentation Packets of Dr. Scholl's BATH SALTS will be attended to with absolutely no delay.

Re-order now! Or if you have so far not co-operated, order now. Window Display Material, including the new Streamer, will come to you with the goods.

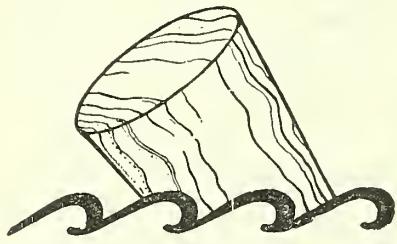
## BONUS OFFER ALSO EXTENDED

The Bonus of 14 saleable packets of Dr. Scholl's BATH SALTS to the dozen, after the first 3 dozen ordered, will hold good until AUGUST 31st. Order a good supply of saleable packets to be ready for the immense demand which will follow the free distribution. Take advantage of this generous Bonus of 1/- clear profit extra on every dozen.

**THE SCHOLL MFG. CO. LTD.**

188-194, ST. JOHN STREET, E.C.1

## ARMSTRONG'S STANDARD TAPERS



EVERY Armstrong Cork is properly graded under a definite name.

Consistency, in quality and dimensions, enables you to obtain identical supplies at all times.

Armstrong Corks are guaranteed by a firm with a 66 years' reputation to maintain.

The Armstrong Grades are:—

- GOLD LEAF BRAND
- SILVER LEAF BRAND
- BLUE LEAF BRAND
- GREEN LEAF BRAND

and N. H. I. BRAND

*Write now for samples  
and quotations.*

### ARMSTRONG CORK CO., Ltd.

Aldwych House,  
**ALDWYCH,**  
LONDON,  
W.C.2

## OVERALLS

### SEND FOR NEW ILLUSTRATED LIST

Jackets and Coats of very superior quality, made from the most reliable materials, smartly cut and thoroughly well finished in every detail.

**WHITE DRILL JACKETS**  
6/11, 8/11, 10/6

**KHAKI DRILL COATS**  
6/11, 8/6, 10/6, 12/6, 14/6

**WHITE DRILL COATS**  
7/6, 9/6, 12/6, 13/6, 15/6

**BLACK DRILL COATS** 15/6  
**GREY COTTON COATS** 7/6

STOCK SIZES: 34 to 44 chest. Special pockets and little adjustments can be made without extra charge. POSTAGE on single coat 9d., but 20/- orders upwards carriage paid.

*SPECIAL PRICES FOR  
LARGE QUANTITIES*

## GARDINER

& CO. (*The Scotch House*), LTD.  
1, 3, 5 Commercial Road, LONDON, E.1

Telephone : Bishopton 6751.

Established 1839.

## REGISTERS.

### Dangerous Drugs Act.

Morphine, Diamorphine (Heroin), Cocaine, Ecgonine, Medicinal Opium, Indian Hemp, Dihydro-Oxycodeinone and Dihydrocodeinone Register, 48 pages, 4/-

Ditto, for Doctors' use, 48 pages, 4/-

Raw Opium Register, 16 pages, 3/-

Morphine Register, 48 pages, 3/-

Cocaine Register, 48 pages, 3/-

Medicinal Opium Register,

48 pages, 3/-

Larger size for Wholesale Trade. Prices on application.

### Spirit.

For records of Spirit used in manufacture, to claim rebate. 48 pages, 3/-

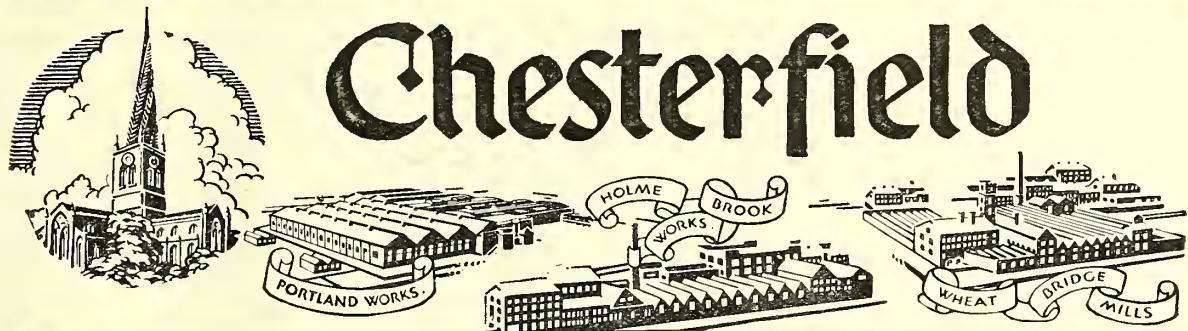
### Methylated Spirit.

For Records of Purchases and Sales of Methylated Spirit in accordance with Order which came into operation February 1st, 1926. 42 pages, Ruled, with Printed Headings, 3/-

All these are 8 x 5, oblong, and Quarter-bound.

### JAMES TOWNSEND & SONS, CHEMISTS' PRINTERS, EXETER.

LONDON OFFICE: 54, FARRINGDON ST., E.C. 4



## The Town of the Crooked Steeple and the Cardboard Box Industry

Goods well packed are half sold, and easier selling means more sales.

We have expert box designers who specialise in designing boxes which are salesmen as well as packages. If therefore you have any packing troubles send them to CHESTERFIELD where our 90 years experience is at your disposal.

**ROBINSON & SONS, LTD., WHEATBRIDGE MILLS, CHESTERFIELD.**  
MANUFACTURERS OF ROUND, OVAL, SQUARE AND FOLDING CARDBOARD BOXES.

900 workers are employed in the above factories.

**KARL HÖLL A.-G.**

Langenfeld, near Cologne, Germany  
EXPORT TO ENGLAND SINCE 1884.



Manufacturers of:  
**TUBES** of all kinds,  
plain and decorated.  
**SPRINKLER TOPS** of  
all sizes and styles.



**IMPORTANT:** When asking for quotations send samples already used and state quantities required. Goods will arrive in 3-4 days with direct steamer from Cologne.

In the last  
5 years  
the sales of



## TOWN TALK

**LIQUID SILVER POLISH**  
& **SILVER PLATE CLOTH**

have increased  
**3 Fold**

Get your share of the  
trade by ordering from

JAMES WOOLLEY, SONS & CO., Ltd.,  
Manchester

AYRTON, SAUNDERS & Co., Ltd., Liverpool  
BROOKS & WARBURTON (American Drug  
Supply Co.), Ltd.



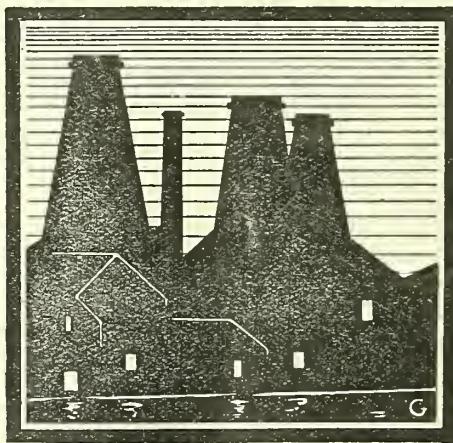
We stock **DECORATED TINS** for:-

Ointments -  
Brilliantine  
Health Salts

Kindly write for free samples and prices.

**THE CALDICOT TIN STAMPING WORKS LTD.**  
CALDICOT, Nr. CHEPSTOW, Mon.

**Town Talk Polish Co.**  
Whitby St., Bradford Road, Manchester



## Pharmaceutical Glassware of all kinds

DISPENSING BOTTLES  
CHEMISTS' SHOP BOTTLES  
INFANTS' FEEDING BOTTLES  
SOXHLET BOTTLES. EYE-BATHS

## Designers & Manufacturers of Glassware for Perfumes, Cosmetics and Bath Salts

SPRINKLER NECK BOTTLES  
WHITE OPAL AND ROSE PINK  
FROSTED GLASSWARE

**Colours**      WHITE FLINT, MEDICAL TINT, PALE GREEN,  
ACTINIC GREEN, AMBER, BLUE and ART COLOURS

*All our Manufacture is of the Highest Quality*

**WOOD BROTHERS GLASS CO., LTD.**

(ESTABLISHED 1828)

**BARNESLEY**

- - - -

**ENGLAND**

# THE CHEMIST AND DRUGGIST

## SUPPLEMENT

28 ESSEX ST.  
LONDON, W.C.2

AUGUST 16, 1930

*This Supplement is inserted in every copy of The Chemist & Druggist.*

## THE SUPPLY OF SUPPLEMENTS

The clerical work in connection with the posting of spare copies of the Coloured Supplement week by week has increased to such an extent that we have been compelled to reorganise our system of distribution. Our readers will please note, therefore, that in future, instructions can be accepted for not more than six successive issues of the Supplement at a time, and that in every case the name and full postal address should be written on

**Post Office Wrappers, Stamped ONE PENNY, to ensure prompt delivery.**

If wrappers bear a halfpenny stamp only, postal delivery is delayed.

Loose stamps will not be accepted.

## CLOSING FOR PRESS.

MUST REACH US  
NOT LATER THAN

FIRST POST THURSDAY MORNING.

ALL ADVERTISEMENTS INTENDED FOR  
INSERTION IN THIS SUPPLEMENT

## CHEMISTS' TRANSFERS.

Messrs. Orridge & Co., 56 Ludgate Hill, E.C.  
Telephone No.: CITY 2233.

May be consulted at their Offices on matters of Sale, Purchase and Valuation

1.—**ESSEX.**—General Retail and Dispensing Business, with N.H.I. and Kodak Agency; returns, present rate, approximately £27 weekly; double-fronted shop, well fitted and stocked; good living accommodation; garden; rent £100; long lease; price for quick sale £600, or near offer.

2.—**CITY PHARMACY.**—Retail and Dispensing, with Kodak Agency, situate in commanding position; returns last year £3,256; audited books; double-fronted shop, well fitted in oak and heavily stocked; rent £200; held on lease; price £2,500; ill-health cause of sale.

3.—**LONDON, N.W.**—General Retail and Dispensing Business, with Kodak Agency; returns last year £2,016; attractive shop; stock and fixtures estimated to be worth about £650; comfortable house; held on lease; price for quick sale about £850.

4.—**EAST END.**—Quick Cash Retail Business with N.H.I. Dispensing and Kodak Agency, situate in busy main road; established 68 years; returns last year approximately £4,500; good profits; large double-fronted shop, well fitted and heavily stocked; living accommodation; bathroom; rent £180; long lease; price £3,100.

5.—**LONDON, S.E.**—Medium-class Retail and Dispensing Business, with Kodak Agency; established many years; returns, present rate, about £23 weekly; single-fronted shop; main road position; stock and fixtures worth about £500; rent £100; sub-let £65; price £500, or value of stock and fixtures.

6.—**NORTH LONDON.**—Cash Retail Business and Branch for Disposal; Kodak Agencies and N.H.I. Dispensing; returns, present rate, £60 weekly, plus N.H.I.; rent £90 per annum and £120 per annum respectively; living accommodation at main; price £900 all at, or would sell separately.

7.—**MIDDLESEX.**—General Retail and Dispensing Business, with Kodak Agency; returns last year £1,470; scope for increase in hands of younger man; double-fronted shop in main road; living accommodation; rent £135 per annum; one room sub-let at £52; held on lease; price to be arranged; offers invited.

8.—**LANCS.**—Good-class Retail and Dispensing Business, with Post Office, Kodak Agency, N.H.I., and Branch, for Disposal; established 28 years; returns £3,200 per annum; net profit

£700 per annum; vendor estimates value of stock and fixtures at £1,500; living accommodation at main shop comprises eight rooms, scullery and side entrance; rent £125 and £50 respectively; held on leases; price £2,000 or offer.

9.—**ESSEX (Large Town).**—General Retail and Dispensing Business with Agricultural connection, Kodak Agency and Post Office; returns, 1929, £2,042, plus Post Office earnings, £310; double-fronted shop, well fitted and heavily stocked; very good living accommodation; vendor owns property and would sell same or grant lease; price £500, plus stock and fixtures at valuation; run under management.

10.—**BRIGHTON.**—Good-class Retail and Dispensing Business; returns exceed £2,850; gross profit approximately £1,200; double-fronted shop, well fitted and stocked; extremely good house, which can be sublet to cover the whole of rent if so desired; long lease; price to be arranged; this business offers scope for increase under more modern management.

11.—**SURREY.**—High-class Dispensing and Retail Business, with Kodak Agency; established many years; returns, under management, approach £2,300; stock and fixtures estimated to be worth £1,100; rent £70 per annum; sublet £52; held on lease, or property may be purchased; price asked £1,500, or valuation terms entertained.

12.—**BERKS.**—Middle-class Cash Retail, with Kodak Agency and Photographic; old-established; returns about £1,300 per annum; very good profits; double-fronted shop, well fitted and stocked; rent £72 per annum; sublet £104 per annum; living accommodation available if required; vendor is anxious to sell forthwith and will accept first reasonable offer.

13.—**WILTS.**—Medium-class Dispensing Business, with Kodak Agency and own D. & P.; returns approach £1,500, with net profit £350; stock and fixtures estimated at £750; living accommodation; rent £40; price £850.

14.—**LINCOLNSHIRE.**—General Retail and Dispensing Business; Kodak Agency; established a century; returns approximately £2,800 per annum, increasing; net profit £700; vendor estimates value of stock and fixtures at approximately £1,200; large house with side entrance; rent £150 for seven years and £175 for 14 years; lease 20 years unexpired; price £1,700.

Messrs. O. & Co. are prepared to undertake these essential duties and make SPECIAL TERMS for such service.

## Valuations for Stocktaking

**ORRIDGE & CO., 56 LUDGATE HILL, LONDON, E.C.4**

## The Association of Manfg. Chemists, Ltd.

**Business Agency, Transfer & Valuation Department**  
**Head Offices—Kimberley House, Holborn Viaduct, London**  
**E.C.1 (and at 2 Bixteth Street, Liverpool).**

**PARKIN S. BOOTH, Valuer.** *'Phone: City 1261-2-3*

### BUSINESSES FOR DISPOSAL

1.—LONDON, S.W.—Old-established Chemist's Business, held on lease 8 years at £56 p.a.; let off £91 p.a.; returns average £17/20, under management; premises consist of double-fronted shop with two rooms behind; price for lease and goodwill, £150; fixtures, etc., £150; stock at valuation, approximately £350. Further particulars on application. (43)

2.—LONDON, N.7.—Old-established Optical Business, combining recently established Pharmacy, held on lease with 14 years to run at a rental of £250 p.a., of which £135 is let on lease; returns £28 per week; very large shop, dispensary and sight-testing room, situated in busy main road; no opposition for some distance. Further particulars on application. (42)

3.—MANCHESTER.—Old-established Retail Business for quick disposal; yearly tenancy; rent £150; returns for the last 40 years average over £50 weekly; at present returns are £35 weekly; nicely fitted and good stock; Wine and Spirit Licence; living accommodation. (48)

4.—LIVERPOOL.—General Retail Business, with N.H.I.; established many years; turnover for year ended March 31 £1,340, plus N.H.I. £380; with capable supervision this could be considerably increased; tenancy yearly at rental of £75 per annum, plus rates; price asked £500, plus stock at valuation (approximately £475). (40)

5.—LONDON, S.W.—Recently-established Retail Dispensing Business premises on 15 years' lease at £150 per annum, of which part is sub-let at £104 per annum; returns 1929, £1,932, all cash; Kodak and U.C.A.L. Agencies; price for quick sale £1,100 all at, or £750, plus s.a.v. (approximately £425). (41)

6.—LINCS.—Established Dispensing and Retail Business for quick Disposal in important town; 17½ years' lease to run at £200 per annum; returns average £50 per week; very large shop, situated in main thoroughfare; specially recommended.

7.—SOUTHSEA (Near).—Recently established Dispensing Business; lease will be granted at rental of £120 per annum; rates £14 6s.; returns £25 per week; no price asked for goodwill; double-fronted shop; good living accommodation; new premises. (47)

## BERDOE & FISH

**CHEMISTS' VALUERS AND TRANSFER AGENTS,**

**41 Argyle Square, KING'S CROSS, W.C.1**

(One minute from St. Pancras and King's Cross Stations.)

1.—NORTH-WEST COAST.—High-class Retail and Dispensing with Kodak Agency; returns £3,250; net profit £700; good modern house; well fitted and fully stocked; price £2,000 or near offer.

2.—MIDDLESEX (Few Miles Out).—Good-class Family Retail and Dispensing, with Kodak Agency; returns over £2,400; gross profits exceed £1,000; audited accounts; excellent house, garage, etc.; owner retiring; price £2,000.

3.—EAST COAST.—High-class Business, with Confectionery; no Dispensing or Photographic; returns exceed £2,400; stands to do easily £3,000; excellent shop, in main business street; good house with nice garden; owner retiring; price £2,000.

4.—BOURNEMOUTH DISTRICT.—Good-class Business, in fine main road position; returns £1,450, increasing; smart lock-up pharmacy, well stocked; price £850, or valuation terms.

5.—NOTTS.—Old-established country Retail; no N.H.I.; returns average £1,200; nearest opposition 5 miles; 8-roomed house, on lease; owner having purchased a business on South Coast, will accept valuation of stock and fixtures, about £500, and reduce stock to suit purchaser.

6.—ESSEX COAST.—Unopposed Drug Store with Kodak Agency; returns £700; scope for increase; rent £24; good house, and garden; stock worth £300; price £400.

7.—HARROW.—Modern good-class Business; returns £20 a week, under manager; scope for much increase; well fitted and stocked; good house; long lease; price, value of stock and fixtures, about £750.

8.—LONDON (Essex Suburb).—Light Cash Retail, in main shopping centre; returns £1,500; net profit about £300; good house; stock and fixtures worth £550; price £625.

9.—WEST LONDON.—Old-established Drug Stores, same hands many years; retiring; returns over £700; net profit £211; low rent; house attached; price £350.

10.—LONDON, W.C.—General Cash Retail, with Photo, very few Patents; returns £40 a week; net profit £650; audited figures; modern double-fronted shop; beautifully fitted; stock guaranteed £800; price £1,800.

Estab. 1870.

Telephone: Terminus 3574.

## JOHN BRIERLEY, F.N.A.A.

**CHEMISTS' VALUER and TRANSFER AGENT**  
**135 Queen Street, Newton Heath, MANCHESTER**

I have an immediate market for sound businesses (Lancashire generally) returning £35 weekly upwards.

"For your better service."

(Tel: Failsworth 113)

If you require the services of a valuer for the  
 SALE or PURCHASE of a CHEMISTS'  
 BUSINESS, write to me.

## CHARLES E. NAYLOR, F.N.A.A.

**CHEMISTS' VALUER**

**170 VESPER ROAD, KIRKSTALL, LEEDS**

Telephone: Horsforth 324.

## BUSINESSES WANTED.

£s. for 50 words or less; 6d. for every additional 10 words or less, prepaid.

The ANVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

NORTH WALES OR NEAR (30 miles radius).—Good Business required; with or without Optics; earnest inquiry; private chemist; early replies as purchaser will be able to visit during his summer holiday; bankers' references given. 202/1, Office of this Paper.

REQUIRED, small Pharmacy, with living accommodation, in N. South-West or South England, capable of being managed by proprietor or with one assistant, or position with view to purchase. Particulars to "Pharco," 5 Upper Terrace Road, Bournemouth.

REQUIRED, Business which could be carried on by proprietor or with one assistant. Henry Grundy, "The Orchard," Croxksford Road, Newmarket.

## SALES BY AUCTION.

THE SALE ROOMS, 5 LITTLE BRITAIN (close to G.P.O.), LONDON, E.C.

Practically new and other CHEMISTS' SHOP FITTINGS, including mirror-lined Wall Showcases, Drug Run with drawers, glass-fronted Counters, Silent Salesmen, Perfumery Desks, Dispensing Screens and Counters, Display Stands, Glass Shelves, etc.,

THREE NATIONAL CASH REGISTERS registering up to £5 (and one of the latest pattern).

B. NORMAN & SON

will Sell by Auction, Wednesday Next, at One o'clock.  
 On View day prior. Catalogues on application.

## AGENCIES.

A DVERTISER SEEKS EXCLUSIVE REPRESENTATION OF A RAW MATERIAL HOUSE SPECIALISING IN COMPETITIVE LINES SUITABLE FOR MANUFACTURING CONFECTIONERS; WELL KNOWN TO LARGE BUYERS IN EASTERN, HOME AND SOUTHERN COUNTIES; COULD PIONEER SUCCESSFULLY IN OTHER AREAS. ADDRESS OFFERS (IN CONFIDENCE), "FIGURES," BOX G.94, WILLINGS, 86 STRAND, W.C.2.

BUYING Agents wanted in provinces for high-class Perfumery, Wax Perfumes and Beauty Preparations manufactured by well-known firm. Applications are invited from responsible firms, to whom favourable contract is offered. Please write for particulars to H. E. Cortes & Son, 47-48 Berners Street, London, W.1.

BUYING Agents wanted for new Household Remedy about to be placed on market and which sells readily at sight at 6d. per box; applications invited from reputable firms only, when full particulars will be supplied in confidence. Crichton & Muir, 4 Bankhead Place, Rutherglen.

MANUFACTURER, established since 75 years, is looking for a Sole Vendor or well-established Agent in different parts of the country to sell a One Penny Razor Blade; references required; very large gaining chances. Write Box 419, Sells Advertising Offices, Fleet Street, E.C.4.

# BANK LOANS to CHEMISTS

## When Buying A Business or Partnership Consult Us —

We are not Transfer Agents, but we arrange GUARANTEED LOANS with the LEADING BANKS for qualified Chemists who require Capital.

The Banks charge 1% over Bank Rate (minimum 5%).

Repayment of Loans can be spread over 5, 6, or 7 years.  
(Note: Income Tax Abatement may be obtained on the Interest paid, thus bringing the present Net Interest Rate down to 4% per annum approx.)

NO PERSONAL SURETIES or GUARANTORS are required. We arrange the necessary guarantees by insurance with a FIRST CLASS INSURANCE COMPANY for whom we act as SOLE AGENTS for this business.

All Enquiries receive the immediate attention of the Principals.

## AUCHTERLONIE, WILLIAMS & CO., LTD.

*Mortgage and Insurance Brokers,*

14 HENRIETTA STREET, STRAND, LONDON, W.C.2. Telephone: Temple Bar 2831-2 (two lines).

### BUSINESSES FOR DISPOSAL.

6s. for 50 words or less; 6d. for every additional 10 words or less, prepaid.

The ADVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

**B**LACKPOOL.—Chemist's Business and Freehold Property for Sale through illness; thickly populated district and capable of development; property consists of double-fronted shop and good living accommodation, at present sub-let £1 per week; stock, fixtures and property all at £1,250. 204/34, Office of this Paper.

**B**LYTH, NORTHUMBERLAND.—For Sale as a going concern, the Business of Manufacturing Chemists and Wholesale Druggists, carried on by Macsons, Limited; stock and fixtures at cost, property at valuation. Apply to the Managing Director at Union Street, Blyth, Northumberland.

**B**RIGHAMPTON.—£1,050 inclusive; unique opportunity as permanentancy or speculation; in present hands eleven months, in which time it has trebled; takings £30; certain to rise to £60, central, busy main road; unopposed; smart, modern, well fitted, well stocked; rent £10 per annum; living accommodation, now let off for £65; owner entering wholesale. 204/38, Office of this Paper.

**C**OVENTRY.—Chemist's Business; main road; established about 50 years; lease; Wine Licence and valuable agencies; price, including stock, about £700. Marston, Auctioneer, Warwick Row, Coventry.

**H**ANTS.—Genuine, old-established Business in growing, good-class residential district; average takings about £1,650 per annum; well-fitted shop; good living accommodation; large garden; ample scope for development with Library and Fancy; good lease or purchase. BM/ENJG, London, W.C.1.

**L**ONDON, S.W.—General Retail; scope for increase all round; returns £1,200; net profit £340; rent £65 per annum; sub-let £78; vendor, who is obliged to leave business through ill-health, will accept low price for quick sale; splendid chance for man with small capital; particulars at interview. 203/27, Office of this Paper.

**L**ONDON.—Branch Pharmacy; last eight years under manager; large Panel; no opposition; suit young pharmacist; rent £60; house attached; long lease; price £750 cash. 204/12, Office of this Paper.

**L**ONDON, S.W.—For immediate Disposal by private treaty, well-established personality and Dispensing Business; situated prominent business position in good-class residential district; returns 1929 £1,413, with profits well above the average, and with considerable scope for increase by more energetic man; rental £60 on valuable lease (14 years to run); excellent living accommodation and private entrance; Kodak Agency; well fitted and stocked; price £1,250. Bona-fide applicants willing to come and view please write "J. M.", 204/37, Office of this Paper.

**M**IDLAND TOWN.—Main road suburb; takings £15 per week; well fitted and stocked shop; Light Retail, with Kodak Agency; N.H.I. Optician badly needed in district; rent £49 per annum; lease 3 years to run; good house;; electric, gas, hot and cold water, etc.; good reason for disposal; will accept £350 for quick sale. 203/10, Office of this Paper.

**W**ILTSHERE.—Well-fitted Pharmacy, with Kodak and Ingerrsoll Agencies; nearest opposition 5 miles; nice house, 6 rooms, garden, outbuildings; electric light throughout; rent £40; suit qualified or unqualified man; price £150 for goodwill and fittings; stock at valuation (about £240 at present). 201/25, Office of this Paper.

**Y**ORKSHIRE CITY.—Drug Store for Disposal, situated on a main road, in a thickly populated district; opening for N.H.I. and Photography; fine opportunity for qualified man; lock-up shop; rent £1 per week; excellent fixtures; good stock; price £250. Write 203/38, Office of this Paper.

**C**HEMIST and Druggist; main road; busy shopping centre; near station and bus terminus; under management; good scope for owner; Surrey marketing town; no opposition. 202/9, Office of this Paper.

**D**RUG Stores; splendid opening for N.H.I. Dispensing and Optics; same hands 20 years; in busy main road; low rent; long lease; nicely-fitted shop; nice house and garden; price £375. Further particulars from 203/35, Office of this Paper.

**D**RUG Stores; £75; lock-up; Islington; thickly populated district; trade at present £10; stock about £50; rent 8s.; insured; owner must sell owing to health; will consider reasonable offer; only wants seeing. P.C.B. 76/26, Office of this Paper.

**FOR Sale**, Clacton-on-Sea, Drug Stores, at present taking £10 per week; good scope for qualified man; house can be had on mortgage; over £100 paid off; good reasons for selling; price inclusive £200, or near offer. 27 Thomas Road.

**FOR Sale**, old-established Chemist's Business in country district near Lincoln; no opposition; good house, shop, garden; rent and rates £60 inclusive; on lease; owner leaving on account of illness at once; good stock; turnover averages £20, more in winter; a bargain at £250 for stock, fixtures, etc., or nearest offer, as owner must sell owing to not being able to attend to; scope for increase. Apply, "Urgent," 204/5, Office of this Paper.

**FOR Sale**.—A genuine opportunity to acquire, through the death of the proprietor, the business of a Wholesale Manufacturer of Perfumes and Druggists' Sundries; established 80 years; situated in Manchester; with a large Continental connection. Apply, Thomas Jackson, Mary Street, Strangeways, Manchester.

**OLD-ESTABLISHED** and well-situated Business for Disposal in Western market town; profits last three years average £350, in spite of health handicap; capable of very considerable extension in energetic hands; good living accommodation; investigation welcomed; cash price about £1,700; bank references, please. 204/1, Office of this Paper.

**OPPORTUNITY** occurs to secure very old-established Pharmacy in Midland market town; easily worked and offers a steady income in charming surroundings to one desirous of easier conditions; good house; property can be purchased or lease arranged; price for business £1,800, or near cash offer. Full details on receipt of bank reference. 204/100, Office of this Paper.

**SMALL Retail Business for Sale**; large corner lock-up; easily divide into two shops; stock at valuation; small premium for goodwill and fixtures. 205/23, Office of this Paper.

**£350, OR NEAREST OFFER**.—West Riding (Drug Store); main country road; nicely fitted and well stocked; would suit Chemist on his own; Photographic and Panel could be added; good house, 8 rooms; part could be let off; dentist or otherwise; owner desirous of quick transfer; rent £36. 201/20, Office of this Paper.

**£375.**—South Devon; working-class neighbourhood; lock-up shop; rent £1 per week, including rates; seven years' lease; suit beginner. 204/35, Office of this Paper.

## APPOINTMENT.

### BIRMINGHAM CENTRAL TECHNICAL COLLEGE.

**A PPLICATIONS** are invited for the post of Lecturer and Demonstrator in the Pharmacy Department. The position is a whole-time appointment, the candidate to commence duty as soon as possible. Candidates must possess the Pharmaceutical Chemist's qualification of the Pharmaceutical Society or a Degree in Pharmacy. Preference will be given to applicants who also possess a Science Degree and some teaching experience. Salary in accordance with the Burnham Scale. Particulars of the appointment will be sent on receipt of a stamped addressed foolscap envelope by the Principal of the Central Technical College, Suffolk Street, Birmingham, to whom applications, on the special form provided, should be returned by August 25th.

P. D. INNES, Chief Education Officer.

## PREMISES FOR SALE.

**FREEHOLD Property** in Daventry for Sale, with vacant possession, containing shop eminently suitable for Pharmacy, two living rooms, four bedrooms, kitchen, scullery, bathroom (h. and c.), conservatory and outbuildings. Apply Dennis Faulkner & Alsop, Solicitors, Daventry.

**L ONG lease** of well-fitted Shop and Basement at low rental for Sale, busy West Central district; ideal for Chemist; no competition; attractive window; centre of shops, offices, hotels, etc.; specially suitable either for branch or beginner to step into. Apply "J." 10 Sicilian Avenue, W.C.1. Phone: Holborn 5970.

## APPRENTICES.

**YOUTH**, aged 19, seeks situation as Chemist's Apprentice; passed Preliminary; Manchester preferred. 175/223, Office of this Paper.

## PREMISES TO LET.

**1 HIGH STREET, SKEGNESS.**—Carried on as Drug Store in summer; closed in winter; all-year-round trade could be developed; about £600 turnover last season at seaside prices (18 weeks); rent £75; lease could be arranged; possession at once; stock and fixtures optional; owner has other interests and cannot give attention. Apply on premises or to G. Cheetham, "The Glen," Louth, Lincs.

**S HOP Premises**, eminently suitable for Chemist, with or without living accommodation, main road, Boscombe, Bournemouth; thickly populated area. Write "Owner," 202/16, Office of this Paper.

**S HOPS** to be Let or Sold, splendidly situated in populous area in Whetstone; fine shops with flats over, now in course of erection, affording an unique opportunity for the opening of a Chemist and Druggist trade; £1,650, freehold; rent £145 per annum. H. E. Percy, Builder, 875 Finchley Road, Golders Green, N.W.11.

## PREMISES WANTED.

**D ENTIST**, with several registered assistants, wishes to get in touch with Chemists who wish to increase their income and have room for Dental Chair in room on their premises; advertiser has own car and carries full equipment; any chemist within 25 miles radius of London will be entertained and negotiated with. 174/211, Office of this Paper.

## SITUATIONS OPEN.

### RETAIL (HOME).

6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid.

The ADVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

**A YLESBURY.**—Unqualified male Locum for Dispensing and Light Counter work wanted for two weeks from September 1. T. M. Ashford, Chemist, 16 Market Square, Aylesbury.

**B IRMINGHAM.**—Unqualified Assistant, used to N.H.I. Dispensing and Photographic trade, age about 25, and with first-class references. State salary and experience to 202/22, Office of this Paper.

**C HESHIRE.**—Qualified Manager for business in centre of country town; must be keen and energetic Salesman, experienced in Dispensing and Photography; good berth for a good man. Please state age, height, experience, references, and enclose photo. Young, Chemist, Nantwich.

**E SSEX** (8 miles from City).—Wanted, at once, qualified Chemist to assist in management; knowledge of all branches; good Window-dresser; references and salary wanted P.C.B. 76/19, Office of this Paper.

**H ASTINGS.**—Gentlemanly Junior, with good Dispensing experience, required for Dispensing, Stock and Window-dressing. Reply, stating age, height, experience, and salary required; enclose references and photo. Edwards, Chemist, 17 Queen's Road, Hastings.

**K ENSAL RISE.**—Smart lady Assistant required, with good experience in quick Family business; must be good Counter-hand and up-to-date Window-dresser. Send full particulars of previous experience, age, when at liberty to 202/51, Office of this Paper.

**L IVERPOOL.**—Qualified, young, energetic, trustworthy Manager. State age, experience, salary required, with photo and references. D. Norman, M.P.S., 269 Crosby Road, Seaforth, Liverpool.

**L ONDON, E.**—Qualified Manager wanted immediately; must be a really smart man, not afraid of work, with previous experience in quick cash industrial business with large N.H.I.; liberal salary and commission to the right man; good house attached. State age, salary, when free, and previous experience to 202/311, Office of this Paper.

**L ONDON, S.W.**—Qualified Assistant (gentleman), about 25 years of age, for high-class Dispensing business; good Counter-man. Please give fullest particulars of experience, etc., and when disengaged. 203/37, Office of this Paper.

## PHOTOGRAPHS, TESTIMONIALS, &amp;c.

When answering advertisements in this section applicants are strongly advised not to send (unless specially requested) ORIGINAL TESTIMONIALS or VALUABLE PHOTOGRAPHS. As can be readily understood, when an advertiser receives from 60 to 100 replies the task of returning photographs, testimonials, &c., is one of some difficulty.

**LONDON SUBURB.**—Unqualified Junior required, male or female, young, with knowledge of Dispensing and Toilet Preparations. State experience, height, age, salary required, and when at liberty. 203/30, Office of this Paper.

**LONDON SUBURB.**—Smart, qualified Manager required for good-class business in main thoroughfare; first-class Window-dresser and keen Salesman; well experienced in all Toilet lines and knowledge of Photography. 203/300, Office of this Paper.

**LONDON, N.W.**—Unqualified Junior at once; state salary expected, age, and experience; time for study might be arranged; part-time Assistant considered. 204/59, Office of this Paper.

**MANCHESTER.**—Qualified Manager wanted; knowledge of Photography essential; one with Optical qualification preferred; house if necessary. Apply Gees', 7 School Road, Sale, Manchester.

**SHEFFIELD.**—Qualified Assistant wanted for old-established mixed trade; no Sunday duty. State full particulars salary, experience, age, etc. Hewitt, Chemist, Division Street, Sheffield.

**SHROPSHIRE VILLAGE.**—Elderly, qualified man required; hours easy; light work; send copies testimonials. Applications not answered declined. 204/32, Office of this Paper.

**THE FOREST HILL PROVIDENT DISPENSARY** require the services of a qualified Dispenser; he will be required to devote the whole of his time to the work and to do the necessary book-keeping; salary £3 per week and free house, fuel and light. Further particulars may be obtained from the Hon. Secretary, 24 Westbourne Road, Forest Hill, S.E.23, to whom applications marked "Dispenser" should also be sent.

**THE ROYAL INFIRMARY, SHEFFIELD (500 Beds).**—Assistant Dispenser (male) Wanted; Minor qualification at least; hours 9 to 5, and 9 to 1 on Saturdays; alternate Sunday duty one hour. Applications, stating age, qualification, experience, when available, and salary desired, to be addressed forthwith to the General Superintendent and Secretary, The Royal Infirmary, Sheffield.

**WEST LONDON SUBURB.**—Managing Assistant, unqualified, married, about 35, to live on premises, with good all-round experience in Photography, Window-dressing, etc. Write full particulars and salary required to "S. S.," 204/9, Office of this Paper.

A (small) private limited company shortly require a capable Manager for high-class Pharmacy (Yorkshire); applicants must be energetic, good Salesmen, with first-class knowledge of Window-dressing, control staff. Full particulars, age, experience, salary required, when disengaged. 196/6, Office of this Paper.

**A**SSISTANT (unqualified) required, about 25, for the beginning of October, with good all-round experience and reliable, for working- and middle-class business; one locally preferred, but not essential. Apply, with full particulars, stating age, salary required, and whom to apply for references, to W. H. Walker, Chemist, Willenhall, Staffs.

**A**T ONCE.—Qualified Junior Assistant for Dispensing, Counter and General Display work; good-class business; splendid opportunity for gaining first-class experience; easy reach London. Apply, stating age, experience, salary, etc., 203/36, Office of this Paper.

**DISPENSER-BOOK-KEEPER** (lady) required. State salary, age, etc. Dr. Lloyd, "Fairfield," Hayes, Middlesex.

**JUNIOR** Assistant, towards middle of September, reliable, accustomed to good-class Dispensing business and Window-dressing; no N.H.I. or Photography; indoor berth; comfortable. State age, experience, and references, salary, photo. Thresh, Buxton, Derby.

**L**OCUM.—Qualified Chemist for two weeks, end of August, beginning of September. State experience (Hospital preferred), age, terms, reference, etc., to the Pharmacist, Gloucester Dispensary.

**L**OCUM.—Woman Pharmacist wanted, September 13 or 15-30 inclusive; must have had good-class Retail and Photographic experience (no D. & P.). Apply, stating particulars, experience, references, age, and salary required (outdoors), Miss Elsworth, Chemist, Bramley, near Guildford.

**L**OCUM, Junior, unqualified, for one month, commencing September 1; Hertfordshire. State salary required. "Zingib," 204/10, Office of this Paper.

**QUALIFIED** Chemist (lady or gentleman) required to manage branch near London. Apply, stating age, experience and salary. Please give full particulars, when at liberty, and enclose photo if possible. H. B. Figg, Berkhamsted, Herts.

**QUALIFIED** Manager required, middle of September, for branch near London. Apply, stating age, experience and salary. Please give full particulars, when at liberty, and enclose photo if possible. H. B. Figg, Berkhamsted, Herts.

**QUALIFIED** Manager (for Ilford); permanency; age about 35; first-class Window-dresser and experience of good-class business essential. Apply, stating full particulars, references, and salary, to 202/32, Office of this Paper.

**QUALIFIED** Manager for branch; lock-up shop (Thames Valley); first-class Dispensing experience essential; young, married preferred, with pleasing personality; salary and commission offered. Apply, 199/39, Office of this Paper, stating age, salary required, and previous experience.

**QUALIFIED** Managing Assistant required at once; must be reliable and a worker; one just qualified or middle-aged would suit. Full particulars to A. A. Dawson, 257 High Street, Ponders End, Middlesex. Telephone: Enfield 0076.

**QUALIFIED** Assistant wanted; Sussex; lady or gentleman. Particulars, when free, salary required, etc., 205/4, Office of this Paper.

**REQUIRED**, in September, Junior Assistant; male; unqualified; permanent berth; progressive salary to suitable man; salesmanship must be A1. Apply by letter, with full particulars, to G. J. L. Pentney, M.P.S., 38 Albion Road, Dalston, E.8.

**UNQUALIFIED** Assistant (20-30) required immediately until end of September; good appearance, smart Salesman, good Dispenser and Window-dresser essential. Apply, stating age, height, experience, references and salary required in first letter, and enclose photo if possible. Kemp, Chemist, Upminster.

**WANTED**, near Surbiton, qualified lady for Dispensing and Counter. Full particulars as to salary, etc., in first letter. Sale, Chemist, 426 Ewell Road, Tolworth, Surrey.

**WANTED**, for first three weeks in September, unqualified Junior. References and salary to Wootton & Webb, Ltd., Luton.

**WANTED**, Locum, unqualified, from about August 25, for one month; references first letter. Mrs. M. E. Piquet, Parade Drug Stores, Jersey.

**WANTED**, a fully-qualified Chemist (M.P.S.) (one with Optical experience preferred) to take charge of an established business. Applications, stating age, experience and salary required (with two references), to the Secretary, Crosland Moor Co-operative Industrial Society, Ltd., Huddersfield, not later than Thursday, August 28.

**WANTED**, a Dispenser for a mixed practice in Hampshire; should be experienced and reliable and accustomed to keeping Panel records, and have some knowledge of Book-keeping; state qualifications and experience and salary required; give references; wanted in September. 205/16, Office of this Paper.

**WORKING Holiday!** — Sussex Chemist requires young Unqualified Locum (lady or gentleman) Dispenser from September 1 to 15; mornings and evenings only; would suit student; board-residence and small salary offered; charming country. Enclose photo, if possible, and references. "Sussex," 203/18, Office of this Paper.

**YOUNG** Unqualified Assistant wanted, male or female; used to N.H.I. Dispensing; one with Apothecaries' Hall qualification preferred. Apply, Liff's, Cash Chemists, 235a Commercial Road, E.1.

**WANTED — a very special Representative**

to introduce a new nationally advertised article to wholesale houses. Liberal terms and unlimited support for right man. First class connection with wholesale chemists essential. Applications from any district considered. Write, stating full details and what other lines are carried, to 175/219, Office of this Paper.

**WHOLESALE.**

6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid.

The ANVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

GOOD percentage offered to men calling on Chemists and Hairdressers, all districts, to introduce attractive Toilet line. Apply 201/26, Office of this Paper.

JOHN RICHARDSON & CO., LEICESTER, LTD., Evington Valley Road, Leicester, are requiring the services of an experienced Representative. Applicants will please give full particulars, in confidence.

MEDICAL REPRESENTATIVE.—Qualified Scientific Medical Representative required by old-established firm of manufacturers of Endocrines; applicant must have first-class knowledge of Endocrine Therapy and be technically efficient to introduce same to the London Consulting Physicians. Give full details of records and salary required to "Hormone," 175/222, Office of this Paper.

REPRESENTATIVE, country, wanted by London Wholesale Druggists. Reply, giving full particulars of experience, etc., to "Galen," 174/214, Office of this Paper.

REPRESENTATIVE, part-time, for Scotland, to carry a few small popular lines for Chemists; liberal commission. Full particulars, 175/220, Office of this Paper.

REPRESENTATIVE, whole or part time (Yorkshire district), by Wholesale Druggists for Packed Specialities; car an advantage; knowledge of trade essential. Applications, stating age, experience, and terms desired, to Box H.702, Lee & Nightingale, Liverpool.

REPRESENTATIVES required for London and provinces by German manufacturer of Chemical and Surgical Glassware, Laboratory Utensils, etc.; must be well known and have good connection with Manufacturing Chemists, Surgical and Drug Sundries Houses, Medical Schools, etc. Write, giving full particulars (strictly confidential), to "F. T." Box 911, Potter's Advertising Agency, Imperial House, Kingsway, W.C.2.

SALEMEN, calling upon Chemists, wanted to introduce speciality; small samples; good show material; liberal commission; districts open, London, South Coast, Scotland, Wales and Ireland. 175/226, Office of this Paper.

SALOON AND BEAUTY PARLOUR PRODUCTS.—Substantial Chemical House, established over a quarter century in the production of high-class Specialities, have decided to commence selling under their own name in future, and invite applications from gentlemen with first-class Wholesale and Retail connections, able to influence immediate sales; territory will only be permanently granted when convincing proof is given of capacity to handle same effectively. State age, territory required, salary and commission, estimated monthly sales, other lines carried, and all necessary particulars (in confidence) to Business Manager, Maison Persey, Ltd., 37 Earl Street, Coventry.

TOOTH BRUSHES, ETC.—Travellers required for London area to offer well-known British make; commission basis; applications only considered from representatives already representing an established house. Write fully (in confidence), 204/29, Office of this Paper.

WANTED, young men of good general education as temporary Laboratory Workers; a knowledge of Chemistry is advantageous, but not essential. Applications should be addressed "Chemist," West Midland Sugar Co., Ltd., Kidderminster.

YOUNG Representative wanted to travel country with General Sundries; expenses and commission. Write full details to 175/221, Office of this Paper.

**NAMES AND ADDRESSES.**

When sending advertisements for any of the sections in this Supplement, advertisers—as a guarantee of good faith and not necessarily for publication—should always give their names and addresses. It sometimes occurs that this rule is not followed and delay and disappointment ensues. Strict attention to this detail will be appreciated.

WELL-KNOWN Firm of Toilet Manufacturers requires an Export Manager with good Continental experience, speaking French and German fluently; a man of intelligence and integrity, possessing energy and ambition, is wanted whose record proves undoubted ability in sound business-building. Write, in the first place, giving full particulars, experience, salary required, etc., to 175/224, Office of this Paper.

**SITUATIONS WANTED.****RETAIL (HOME).**

2s. for 18 words or less; 6d. for every additional 10 words or less, prepaid.

The ANVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

A DVERTISER, qualified, middle-aged, married, conscientious worker, thoroughly experienced, highest credentials, DESIRES CHANGE; present situation 17 years; as Manager or Senior; preference for PHARMACY with Optical practice; referred sections C.D.E.H., F.S.M.C., passed J.C.Q.O; outer London or country near; good house attached, or would consider position (with Pharmacist desiring early retirement) with a view to purchase; free October. Reply, with full particulars, in confidence, to 202/5, Office of this Paper.

A.A.A.A.—ASSISTANT, Counter, Dispensing, Display, photographic expert, 25, requires situation; excellent references. 166 Hubbington Avenue, North End, Portsmouth.

A.A.A.—UNQUALIFIED Assistant, 27, ten years' London and provincial experience, last two years West End, desires post in London; West End or City preferred disengaged now. "Mac," 158 Delaware Mansions, W.9.

A.A.A.—QUALIFIED, 28, desires position in September as Manager or Senior; London only; 12 years' London, Continental and American experience; good appearance and address; fluent French. 202/12, Office of this Paper.

A.A.—JUNIOR; attending evening classes; competent Dispenser, Counterman, Window-dresser; thorough knowledge Photography; tall; smart appearance; free October. "Pharmacist," 48a The Broadway, Finchley.

A CAPABLE, qualified Assistant, young, requires post; good experience; excellent references; free August 18. Apply 202/7, Office of this Paper.

A CAPABLE Qualified Young Man requires post, locum or permanent; first-class experience; excellent references. Baker, 25 St. George's Terrace, Leeds.

A CAPABLE unqualified Assistant, aged 26, requires post immediately; 9 years' all-round experience. 28 Willoughby Road, Acton Vale, W.5.

A PHARMACIST, 25, keen, capable, desires position as Manager or Senior; used to highest class business, buying, and staff control; Yorkshire or Northern county preferred, not essential; free one month from engagement. "Retail Chemist," 16 Elsec Road, Rugby.

A QUALIFIED Chemist, at present managing large business in the North, is desirous of obtaining a similar post in Cornwall, or management with view to succession. 201/19, Office of this Paper.

**A** QUALIFIED Assistant, tall, 26, seeks position with a Chemist-Optician in return for some Optical experience; only moderate salary asked (theory B.O.A. already passed); excellent experience West-End and Continent, also Family businesses, both in London and provinces; engagement for October; London district preferred, but not essential. F. McIows, Pharmacie Folliet, Aix-les-Bains, France.

**A** STEADY young man, qualified, age 23, at present with a limited company and desiring a change, invites applications from Chemists requiring reliable help; Liverpool area preferably. Write 202/19, Office of this Paper.

**A** S Manager or Assistant; 10 years own London business; abstainer; keen, energetic Salesman; smart Window-dresser; knowledge of Photography; unqualified; disengaged; London only. "Chemicus," 74 North Street, Luton, Beds.

**A** S Branch Manager; qualified; 25; at present in charge of large branch; 10 years' experience; within 50 miles of London preferred; permanency. 204/31, Office of this Paper.

**A** S Manager; M.P.S., F.B.O.A., J.C.Q.O.; expert Refractometer; keen business man; good Salesman; successful managerial experience; undeniable references. 204/6, Office of this Paper.

**A** SSISTANT; 52; experienced Dispenser and Salesman; moderate salary; single; unqualified; disengaged. "Aspirin," 26 Belmont Street, Monk's Road, Lincoln.

**A** SSISTANT; unqualified; experienced; Locum or permanent; disengaged September 1. "Aspirin," 72 Tremadoc Road, Clapham, S.W.4.

**A** SSISTANT; 20; tall; good appearance; completed 4 years' apprenticeship; used to quick Counter and N.H.I.; full Photographic; free September 1. "J. H. B." 186 St. Peter's Avenue, Kettering.

**A** SSISTANT; unqualified; enthusiastic; six years' experience; Counter, Dispensing and Window-dressing. J. Chatwin, 170 Villa Street, Lozells, Birmingham.

**A** SSISTANT; 23 (referred Pharm. Chem.); London preferred, not essential; good all-round experience; references. John, "Bryn Awel," Hirwaun, Glam.

**C** APABLE, energetic young lady, M.P.S., just qualified, desires position; East Kent or Brighton district preferred, but not essential. 201/18, Office of this Paper.

**C**HEMIST'S Son, age 25, passed Part I, requires situation as Junior for about four months; good experience more essential than salary. C. N. Wakeham, Helston, Cornwall.

**D**ISENGAGED September 6; unqualified; quick Dispenser; excellent experience; undeniable references. "A. B." c/o Durbins, Chemists, The Broadway, Ealing.

**G**ENTLEMANLY Junior; 20; unqualified; excellent Dispenser and Window-dresser; free early September. Apply "Dispenser" c/o Deighton & Smith, Bridgnorth.

**J**UNIOR; unqualified (lady); Counter, Dispensing, light Photographic, Window-dressing; permanency; disengaged. Write, "M. D." 6 St. Paul's Avenue, Willesden Green, N.W.2.

**L**ADY (Hall) seeks post, September or October; good experience and references; Doctor's or Institution. "Dispenser," 97 Burton Road, Brixton, S.W.9.

**L**OCUM; experienced; vacant dates, August 25 to September 13; highest references; reasonable terms. "Locum," Chard, Chemist, Westbury, Wilts.

**L**OCUM; qualified; free now; well recommended; Birmingham or Cardiff districts. Simon, 20 Richmond Road, Handsworth, Birmingham.

**L**OCUM, Relief, Manager; "not registered"; 20 years' experience; Panel, Counter, Prescriber, Salesman. "Smart," 130 Scott-Ellis Gardens, N.W.8.

**L**OCUM; 37; qualified; first-class experience and references; Pharmacy and Photography; disengaged September 8. Findlay, 62 Lillie Road, Fulham.

**M**ANAGER; 28; qualified; single; 12 years' experience; sound references; North London, Bedfordshire or Hertfordshire; can take 2 weeks Locum from August 23. "Chemist," 2 Howard Place, Llandudno.

**M**ANAGERESS, Buyer, Perfumery, Toilet Requisites, 10 years' West-End experience, requires progressive post. "A.C.T." 9 Rosebery Road, S.W.2.

**M**ANAGERSHIP, with view to ultimate succession; market town; Midlands or Eastern Counties. "Pharmacist," 45 Medlicott Road, Sparkbrook, Birmingham.

**P**ART-TIME Dispensing; evenings preferred; extensive experience all classes trade. 204/15, Office of this Paper.

**Q**UALIFIED, aged 24, requires permanency; 7 years' experience of Dispensing, Photographies, Window-dressing; free after one month. 201/39, Office of this Paper.

**Q**UALIFIED, 22, desires permanency; London district preferred; thoroughly experienced; available immediately. Wignell, "Jasmine House," Coalway, near Coleford, Glos.

**Q**UALIFIED, 30, experienced in all branches, desires change. Griffiths, 24 Kinraig Street, Cardiff.

**Q**UALIFIED, 30, married, desires permanency; London district; free September 6; or Locum anywhere. Pain, 76 Tadworth Road, Criklewood.

**Q**UALIFIED lady (London Matriculation, Major), free after September 6; last 2½ years in busy seaside business. "Lady Chemist," "Stanhope," Marine Parade, Herne Bay, Kent.

**Q**UALIFIED Manager, 33, married, good appearance, desires change; 16 years' experience; smart Salesman, Display, Photographic; London or South. 204/28, Office of this Paper.

**Q**UALIFIED lady, 27, requires post as Manager or Assistant; experienced in all branches, including 2½ years managing; excellent testimonials; available September 15; South Wales or near preferred. 204/17, Office of this Paper.

**Q**UALIFIED lady, 23, requires position in London; good all-round experience in Dispensing, Counter work and Photographics, capable of taking charge; excellent references. 203/24, Office of this Paper.

**Q**UALIFIED (21) seeks situation; good experience in high-grade Dispensing and Counter, also N.H.I.; could furnish good references; Bristol or Bath district preferred; free August 25. E. C. Haskins, 4 Cynthia Road, Bath, Somerset.

**S**ITUATION; manage country business; qualified; age 52; good reference; low salary. Whitehouse, 3 Albion Place, Northampton.

**S**OME evening work, London, required by experienced lady Pharmacist. 175/225, Office of this Paper.

**S**TUDENT, 4 years' experience, requires situation, August and September; Birmingham district preferred; Counter, Dispensing, Photography and Window-dressing; excellent references. Neal, 24 Vincent Street, Walsall.

**S**TUDENT, 25, experienced, desires part-time post; evenings and Saturdays; Bristol or London. "E. S." 10 North Avenue, Ramsgate.

**U**NQUALIFIED lady Assistant, smart appearance, West-End experience, desires town appointment, West-End preferred, or act as Locum. "D." 14 Tennyson Avenue, Twickenham.

**W**. LANCS—LIVERPOOL.—Qualified; 8 years' experience; high-class Dispensing, Counter; excellent references; permanency; take charge; 14 days. 199/38, Office of this Paper.

**W**OMAN Dispenser (Hall), last post 27 years, two doctors, desires post with Doctor. Christian, Gleave Court, St. Helens, Lancs.

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